

amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



VOL. 49, No. 10

OCTOBER 1981

FEATURED IN THIS ISSUE:

- ★ QRP SOLID STATE LINEAR AMPLIFIER FOR HF
- ★ WICEN AT THE 1981 SYDNEY AIRPORT EXERCISE
- ★ A REVIEW OF THE FT780R TRANSCEIVER
- ★ CHITARY MORIYAMA, AMATEUR EXTRAORDINARY

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amateur radio

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Cover Photo



WICEN at the 1981 Sydney Airport Exercise. Mike Richter VK2BMM, N.S.W.
WICEN Co-ordinator, with Don Richardson VK2KDR, Sydney South WICEN
Co-ordinator. See page 12.

Photo: Phil Watson VK2ZPW.

History . . .

Amateur Radio magazine was first published in 1933 and has continued ever since. Even during WWII, when paper and resources were scarce, AR still appeared, albeit in the form of duplicated pages.

However "Amateur Radio" was not the only magazine to be "the official organ" of the W.I.A., especially in the early years. In those days a number of well known personalities were involved in the production of journals. Ross Hull, who later moved to the ARRL and QST, is perhaps best known — there were others.

Earlier Ross Hull was associated with "The Radio Experimenter" (later "Experimental Radio and Broadcast News"), first published in Victoria in 1924. From NSW came "Television and Radio Review", May 1931, and "Radio Monthly" later that year.

Australia also had its own "CQ" magazine, that was in 1927, and it was published by the Australian Radio Transmitters League of New South Wales. There were many other magazines published in those first 30 years which included articles relating to amateur transmitting. "Radio in Australia and New Zealand" 1922, and "Land, Sea and Air" were but two and of course there were other regular weekly and monthly papers like "Wireless Weekly" and later "Radio Hobbies", the "Listener in", etc.

These early magazines are of great importance to those researching the development of radio in Australia, including amateur radio.

The Institute's Federal Historian, and a Past President, Max Hull VK3ZS, is keen to obtain copies of the very early radio magazines, particularly associated with the Institute.

1985 is the 75th anniversary of organised amateur radio in Australia. Max needs as much help as he can get — especially from early reports — to enable him to place together the history of amateur radio in this country. Can you help — even for a loan for copying?

P. A. WOLFENDEN VK3KAU,
Federal President.

Q
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P

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VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thaburn Rd, Thaburn.
VK6 — G.P.O. Box 10, W. Perth, 5225.
VK7 — P.O. Box 1070, Launceston, 7250.
VK8 — (incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5799.
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VK9 — QSL Bureau, C/- VK8HA, P.O. Box 1418, Darwin, N.T. 5794.
VK3, 0 — Federal QSL Bureau, Mr. N. R. Penfold VK6NE, 388 Huntrills Rd., Woodlands, W.A. 6018.

WIANEWS

CABLE AND RADIATED SUBSCRIPTION TV INQUIRY

WIANEWS in September AR foreshadowed the preparation of a submission by the WIA to the Australian Broadcasting Tribunal Inquiry into Cable and Subscription Television Services and related matters. This submission has been prepared and lodged. Research into the problems experienced overseas was conducted.

The Institute's position is that radiated pay-TV is the least desirable of the options insofar as the amateur service is concerned.

In connection with cable television very real problems are seen to exist in relation to interference both into and from such a service. The WIA therefore recommended the adoption of adequate standards under the control of a technically competent authority possessing proper powers of control.

Information from the USA in particular indicates that ideally and legally paid-TV cables do not permit leakage from the system or allow incidental RF energy and signals into the system. In reality, however, there are cases of radio-frequency interference blossoming throughout the USA as a result of inadequate shielding and connectors used in cable systems despite strict cable leakage by the FCC.

The terms of the inquiry also included a reference to the optimum dates for the introduction of cable-TV having regard to the present state of development of cable technology, including fibre optics. The Institute believes that cable-TV transmissions by fibre optics is the desirable option if this system can become available within the time scale.

TOWERS

In the matter of an appeal by B. L. Usher and the Corporation of the City of Adelaide (No. 539/1980), the appeal was allowed. The Board held that the appellant did not need planning consent and directed the respondent Corporation to revoke the notice of refusal. The appellant was an amateur and a member of the WIA SA Division, which rendered assistance in every possible way, as this was regarded as a "test" case. The combined height of the tower and antenna in question was 10.93 metres situated at his home.

In the appeal by M. Marlyn against the Campbelltown City Council, heard in the Land and Environment Court of New South Wales (10148/1981), the Court dismissed the appeal in respect of a tower 17 metres in height for amateur purposes at his home in Macquarie Fields. The Court observed that the area of the rear yards behind the houses in the area was very small and that the antenna would cover about half the area of the rear yard. The Court was of the opinion that the proposed mast and large antenna would have a dominating and overbearing effect on persons in the adjoining properties in particular, and probably adjacent properties also. The proposed structure would be out of character with the development of these properties and would injure the amenity of the locality. The Council stressed that the new areas at Macquarie Fields have underground public utility services, hence there is an absence of ugly overhead wires and poles in the streets; the topography is flat and the locality is predominantly single storey dwelling houses with landscaped gardens. In this appeal the member concerned was assisted in every possible way by the WIA NSW Division.

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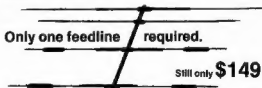
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WIA NEWS

In Victoria the Department of Planning was allegedly approached by the Melbourne and Metropolitan Board of Works to impose limits of 8 metres (from the ground — or 3 metres above the roof line where the mast is attached to a building) in height and to limit the horizontal dimensions of an antenna to no more than 3 metres as the maxima permitted without a planning permit. The WIA Victorian Division actively opposed this and have now received a letter from the Minister for Planning in respect of this Amendment 115 Part 4 that he will not proceed with this provided the Institute takes a lead role in the development of non-statutory guidelines. For this purpose he has written to the Municipal Association of Victoria seeking the nomination of representatives to work with the WIA in developing such guidelines as are acceptable to all concerned. The WIA Victorian Division's representatives have given much time to this matter, which attracted the attention of the media, and are positively replying.

It is believed that some problems have surface in VK6 with amateur towers in residential areas.

The July issue of the VK4 Bulletin QTC contained an article being a summary of an address given to the VK4 General Meeting in May by an amateur who is the Deputy Town Clerk of a fairly large local authority. The article examines local authority by-laws in Queensland and gives advice on the best methods of proceeding with applications bearing in mind the possible provisions of the Standard Building By-laws and the possibilities that some local authorities have "amenity" by-laws as well. As in most places there are, he said, penalties for erecting towers/masts without a building permit.

GENERAL

David Rankin 9VIRH/VK3QV, the IARU Region 3 Secretary, was welcomed to the Executive meeting on 27th August during his short visit to Melbourne. David spoke about current IARU affairs, particularly relating to Region 3.

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Several other items were discussed, including a review of the Federal budget for 1982 having regard to the recently imposed increases in Category B bulk postage rates for AR to come into effect in December and the possibility of AR attracting sales tax in the new year.

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QRP Solid State Linear Amplifier for HF

Drew Diamond VK3XU
43 Boyana Crescent, Croydon 3136

INTRODUCTION

If the power output from a transmitter can be raised from say 1.5W to about 10 watts, a significant improvement in communications efficiency can be obtained. Circuits for solid-state broadband linear amplifiers have been around for some time now, but Australian experimenters have been frustrated by the absence of some of the more specialised components. Suitable transistors, although available, have been very costly. Also, the magnetic materials usually specified for the broadband transformers have been difficult to obtain.

Transistors such as the MRF475 have become quite cheap in recent years due to their popularity in CB equipment. These transistors were specifically designed for linear amplifier applications. Their cost at present is about \$4 each.

The magnetic material generally employed to load the broadband transformers is ferrite, with permeabilities in excess of 800, and low loss factors to 30 MHz. The author has obtained satisfactory results using locally available toroids and balun cores with permeabilities of 50 and 220 respectively.

This empirically designed amplifier has the following characteristics:—

Signal Output Power: At least 8W CW (typically 10W), 10W PEP SSB.

Signal Input Power: 1.5W CW, 2W PEP SSB on 3.5 MHz; 2W CW, 2.5W SSB on 28 MHz.

Bands: 3.5 to 28 MHz.

Input SWR: Less than 1.5 on 3.5, 7, 14, 21 and 28 MHz.

Intermod. Distortion: Of the order of -30 dB.

Power Supply: Nominally +13V at 2A.

CIRCUIT DESCRIPTION

The input signal is matched to the bases of Q1 and Q2 via conventional broadband transformer T1. The base to base impedance is about 12 ohms, so the turns ratio of T1 is 2:1, yielding an impedance ratio of 4:1. Gain levelling and input SWR reduction across the HF band is achieved with a simple RC correction network R1, C4 and R2, C5 in series with each base. Stability is enhanced by the inclusion of R3 and R4.

Forward bias for class AB operation is provided by clamp diode D1, which establishes a quiescent collector current of

about 200 mA. The diode is sourced via R5 and R6, and bypassed for RF and audio by C1, C2, C3 and C17.

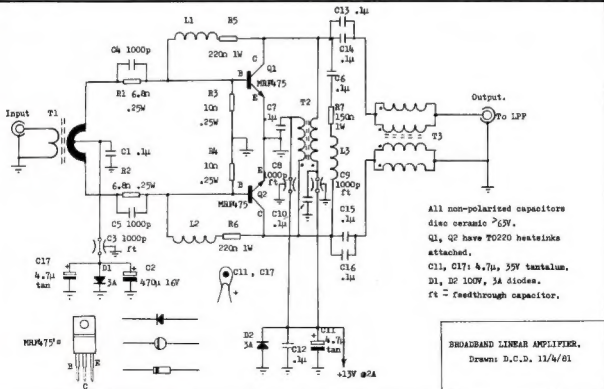
By using a 1:1 balanced to unbalanced transmission line transformer a reasonable collector match to 50 ohms is obtained and it works well in practice.

Stability is obtained by employing negative feedback around Q1 and Q2 with LR networks L1, R5 and L2, R6. The amount of negative feedback falls off in proportion to frequency due to the increasing reactance of L1 and L2, so the gain is a fairly constant 7 dB across the HF band.

This type of amplifier has a tendency to oscillate at low frequencies when the output is terminated in a high SWR load. A very stable amplifier can be obtained by introducing artificial loss to discourage LF oscillation. So C6, R7 and L3 is included from collector to collector to provide this loss.

Collector current is fed via T2. The net DC flux is zero, but the two windings form a 1:1 transformer, and so provide an artificial centre tap for T3.

This push-pull arrangement also reduces the amplitude of even harmonics. As there is considerable odd-harmonic content, it is





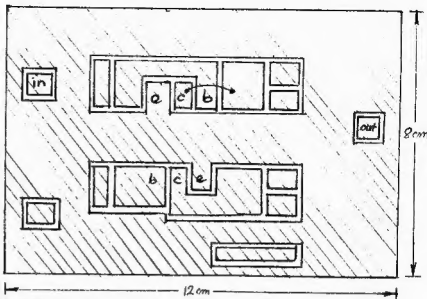
essential to follow the output with an appropriate low-pass filter in order to clean up the output waveform. The new 10, 18 and 28 MHz bands may be used with the 14, 21 and 28 MHz filters respectively. Antenna SWR should generally be held below 2.0:1 for correct filter operation.


CONSTRUCTION

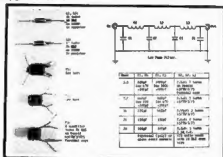
All components are mounted upon a double sided printed circuit board. The reverse side forms a continuous ground plane under the components. All components are soldered directly on to the copper pads except the junctions of L1-R5 and L2-R6 as shown in the photograph. Ideally, ceramic chip capacitors should be used for RF coupling and bypassing applications, but once again these are difficult to obtain. Ordinary disc ceramic capacitors will perform satisfactorily provided that their leads are made as short as practicable.

The secondary of the input transformer T1 has a single turn made from a 7 cm length of RG58 coax braid passed through the holes of a 1050/1/F14 balun core. A scriber is then carefully used to enlarge a suitable opening in the braid at each entrance. Two turns of 22 B & S enamelled wire or thin hook-up wire is then passed through the holes to form the primary winding.

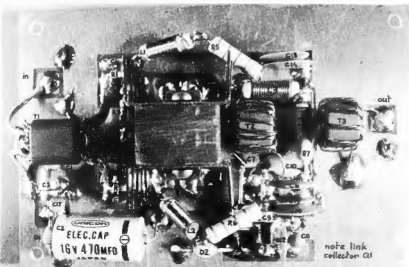
The collector supply feed transformer T2 is a broadband 1:1 transmission line con-



 = Copper. Leave copper on reverse side
Note link.



Wound components and table for LPF.



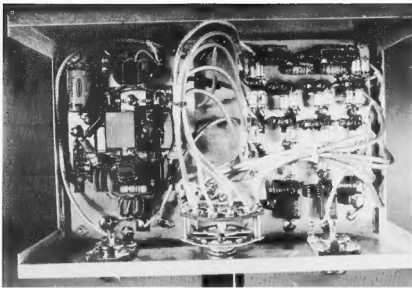
Component locations.

sisting of 14 loops wound upon a 432R/3/F25 toroidal core. To make the windings place the ends of two lengths of 24 B & S enamelled wire in a vice. Twist the other ends together and fix them in the chuck of a hand drill. Keeping the wires taut, turn the drill till there are about two twists per centimetre. Give the drill a tug to "set" the twists and remove the twisted pair. The quadrifilar winding for T3 is made in a similar manner, only four wires are used to form a 25 ohm transmission line. Use a multimeter to find the respective ends of each wire. The start of a winding is indicated on the circuit in the traditional way with a dot. It is important to observe the correct connections for these transformers.

If it is planned to use the amplifier on all bands, a 2 pole, 5 position wafer switch may be employed to select the appropriate filter for each band. All connections to and from the filter should be made with miniature 50 ohm coax with the outer conductors grounded at each end.

The power supply may be implemented using the popular 78H12 regulator IC.

note link
collector G1



Suggested final assembly.

Applications information for this IC abounds in technical literature, and need not be repeated here. Alternatively, a battery supply may be used. A 3 amp fuse should be incorporated in series with such a hefty supply to protect the amplifier from damage should a fault occur.

Q1 and Q2 must have TO220 heat sinks attached to them in order to dissipate the heat that they produce. As the collectors are above ground potential, it is necessary to insulate them. The simplest and most effective method is to mount the transistors and heatinks upon an insulated block which has been drilled and tapped. The completed amplifier assembly may be accommodated inside a metal case if adequate ventilation is provided in the form of holes in the sides and top of the case. The cores may be obtained from J. H. Magrath & Co. of Melbourne, or Watkin Wynne of Sydney. All the other components are available from any electronic shop worthy of that name. The author wishes to thank Nick Kane for the photographs.

REFERENCES

Motorola RF Data Manual.
Solid State Design — ARRL.

Decimal Time

Now that we have (almost!) become accustomed to metrics in this country, it is proposed to extend the decimals further. We amateurs are supposed to be able to adjust to all types of change, therefore we should lead the way and really show the populace how "state of the art" time can improve our wellbeing.

It is proposed that, in the next few months, the whole of Australia (except Queensland) will be converting to metric time.

There will be 10 seconds to the minute, 10 minutes to the hour, 10 hours to the day, and so on, delineated according to the following table:—

Old Time	New Time
1 second	— 1 milliday
1 minute	— 1 centiday
1 hour	— 1 deciday (or millimonth)
1 day	— 1 day
1 week	— 1 decaday
1 month	— 1 hectoday
1 year	— 1 kiloday

The fortnight will be withdrawn.

Due to the fact that one new hour only represents 5/12ths of an old one, employees might be expected to work longer hours, viz., three and a third decadays or millimonths per day. However, as this is inconvenient for administration and payroll purposes, it is intended that the lunch break, if allowed, will be shortened by two-thirds of a new hour, thus making a total daily working time of four new hours.

It is not expected at this time that any compensatory uplift will be made to wages, except in the case of leap kilodays, where an adjustment will be built in at the end of the hectoday every 1.46 decamonths. The Pension Scheme will not be affected, but superkilodayation will be adjusted accordingly.

A further bulletin will be issued closer to Deciday with details of the filling in of time sheets, etc., but if you have any queries, please do not hesitate to contact the Salaries and Wages Section.

LEAVE

Holidays will be affected only so far as the change to Metric Time is concerned, and no one shall be worse off than before. Thus, if an employee was entitled to 22 days (old time) he will be entitled to 22 decadays or one hectoday plus 20 decadays for every hectoday over and above 20 kilodays service since the 10th deciday of the third hectoday of 1976. Further details will be announced later about relief days and holiday allowances for shift workers. Special holidays will accordingly be reduced to 5 decadays but 10 demidecadays will be added, where relevant to the Christmas break, which will be moved to the August Bank Holiday, to take advantage of the longer shopping decadays. The Spring Bank Holiday will be cancelled.

Simple isn't it?

The above article is a part reprint from "Jimmy", July 1981, and adapted for "AR" by VK3UV.

RSARS (VK/ZL CHAPTER)

HIGH FREQUENCY NETS

Daily, 1230 GMT, 21175 kHz \pm . Though primarily a controlled net the UK controller usually requires an overseas station to assume co-control, if more than two overseas stations join in.

When conditions permit, members are encouraged to use the following high frequencies in addition to above:—

14065, 21130, 21375, 28065, 28450 kHz.

OTHER FREQUENCIES AND MODES

RTTY: 3590 and 14090 kHz. Use 170 Hz shift and 45.5 bauds.

Slow Scan: Please notify activity to Headquarters for publication.

ACTIVITY SUNDAY

"Activity Sunday" is the Sunday of the second full weekend in every month. Please make an extra effort to contact our overseas members — use listed frequencies and call on the hour when propagation is suitable.

ALL MODES

Call "CQ RSARS" or "CQ ROYAL SIGNALS AMATEUR RADIO SOCIETY". During a QSO sign "G1ABC de G1DEF BT BOTH RSARS K" or "ONONO de G1GHL BT RSARS K". **DO NOT** join "RSARS" to your call sign in any way (i.e. C1JRL/RSARS) as in Great Britain this is illegal under Home Office Regulations.

Do not wait for the above nets to form — find the nearest clear frequency and call "CQ RSARS". Please do not call CQ on the CW LF controlled nets as there is always a control station around to bring you in. Always book IN and OUT of controlled nets. Pass all details for awards and contests unassisted.

From "Jimmy", July 1981.

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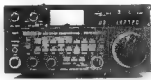
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WICEN at the 1981 Sydney Airport Exercise

Mike Richter, NSW WICEN
Deputy State Co-ordinator

INTRODUCTION

Every year in February, in what is reputed to be the best of its kind in the world, an emergency exercise is held at Sydney Airport to simulate the crash of a Jumbo Jet. The aim of this exercise is to test, under realistically simulated emergency conditions, the Airport Emergency Organisation and to learn how improvements to the effectiveness, adequacy and efficiency can be made.

This type of exercise has been held each year for twenty-four years and as the size of aircraft has increased so the scale of the exercise must follow, so that this year's exercise involved the rescue, triage, treatment, transport, hospitalisation and identification of approximately 180 uninjured passengers sixty injured and fifteen dead. Obviously this requires an enormous communications network involving Fire Brigade, Police, Ambulance Department of Transport and Welfare services. This year the police decided to test the usefulness of volunteer communicators to relieve some of the pressure on the main operations networks and to provide links for special purposes.

The only volunteer rescue groups which NSW police recognise are those which are members of the NSW Volunteer Rescue Association. It was for this reason that WICEN applied for, and was granted, affiliation with the VRA in 1978. Because WICEN is a member of the VRA NSW, police supported the active participation of WICEN in the 1981 exercise.

EXERCISE DESCRIPTION

The simulated emergency involved a Jumbo Jet from Lunar Airlines which suffers wheel failure on take-off and subsequent hydraulic failure on both systems which could result in control problems on landing. To complicate matters the plane is also carrying four packages of radioactive Tritium.

WICEN's brief from the police gave no indication of the actual traffic to be handled but indicated that communication should be available between —

- 1 The Police Control Van at the Airport
- 2 The Police Emergency Operations Centre, Police Administration Building (EOC), 7 kilometres from the Airport
- 3 Survivor Holding Room in the International Terminal Building (ITB)
- 4 Casualty Section, Prince of Wales Hospital, one of the six hospitals used in this exercise 7 kilometres from the Airport

TECHNICAL ASPECTS

Although all these points enabled reliable communications to be established using hand-helds via the Heathcote repeater, it was decided that the exercise would be more useful if communications were re-



Sydney South WICEN Co-ordinator Don Richardson VK2KDR and Inspector Waring, Police Controller for 1981 Airport Exercise. Photo: Phil Watson VK2ZPW

stricted to simplex. Tests before the exercise revealed that an external aerial would be necessary at EOC and a vehicle transceiver with a high-gain aerial would provide reliable coverage at Control.

The 2 metre WICEN frequency 145.7 MHz was chosen as the primary frequency with 147.5 MHz allocated for any special links that may need to be established. This frequency was chosen to minimise desensitising problems which occur when two frequencies in the same band are used in close physical proximity. At least two transceivers were available at the major locations to guard against equipment failure, and to enable two frequencies to be monitored simultaneously.

IDENTIFICATION

Full identification of the network was provided once every ten minutes from Control as the VK2 WIA network. As had been proved on many previous exercises, minimum confusion occurred if outstations used functional call signs — ITB, TQ, Wales.

PROCEDURE

As this was to be a strictly controlled network with permanent outstations with reliable contact it was decided to keep procedure to an absolute minimum using an abbreviated procedure as used by police in their daily operations. This meant that

- 1 Only outstation call signs need be used to call in to Control or for Control to acknowledge outstations, once the net has been established.

- 2 "Over" need not be used for short transmissions where there is no doubt that the transmission is finished.
- 3 If the quality of signals deteriorates or confusion arises both call signs should be given at the start of a transmission and "Over" used to end transmission.
- 4 Do not read back messages unless specifically asked or if you are not certain that you have received every word correctly.
- 5 Only spell words which are unlikely to be received correctly — this applies particularly to names which have an uncommon spelling, e.g. Braun — Brown, Parker — Barker.
- 6 Use common spelling rather than phonetic spelling as this is faster for pronounceable words when communications are good.
- 7 No transmission is to be longer than 20 seconds as urgent traffic may need to break in with minimal delay. Long messages must be broken up with "Roger so far".
- 8 Make written notes whenever traffic is submitted or an important event occurs, noting the time of day. This will be required for debriefing and could provide vital information in a real emergency.
- 9 Direct conversation between users is to be encouraged to ensure speedy communications.

10 Actual injuries or accidents will be reported by preceding messages with "Authentic, Authentic, Authentic...".

The following example illustrates these points —

Outstation Calls ITB
Control Acknowledges ITB
Outstation Sends Message from HQ
Control calls HQ HQ Message from ITB
HQ Acknowledges HQ Send
ITB Sends From Inspector Black to Emergency Room Survivor list follows.
Roger so far

Break for urgent traffic. H.Q. Acknowledges HQ Roger

ITB Continues John Smith, 38, Warrington, Fred Brown, 16, Liverpool, Wilma Xeraphos, I spell X E R A P H O S, 21, Engadine, Roger so far

DVI Interrupts DVI
Control Acknowledges DVI: DVI.

DVI Sends From Inspector Green to Walker at Control Require Helicopter at Forward Landing Point immediately Over

Control Acknowledges: Roger DVI HQ continue with ITB

HQ Acknowledges TB from HQ, Roger
ITB Continues: Jim Brown, 26, Canley Vase etc

ON THE DAY

Some highlights from the Control Log indicate the more important events that occurred on the day:—

13 08 All outstations have established reliable contact

13 13 "PORTABLE" is established in the network so that the WICEN Liaison Officer can be stationed near the Police Control Van and maintain radio contact with WICEN control

13 25 Police Commander advises that WICEN will be responsible for relaying 'situation' reports to the Emergency Operations Centre

14 03 Message to EOC — Aircraft landed at 1400 hrs.; veered off runway, broke into 3 sections, tail at gate 30, fuselage in Botany Bay adjacent to gate 31, nose landed on "hook" of breakwater

14 26 WICEN operator allocated to provide communications link to Atomic Energy Commission recovery team.

14 35 Message to Control — Two packs containing radioactive material found on beach.

14 37 Message to EOC — Information to hand at this stage indicates 6 deceased and 50 injured. Uninjured are being conveyed to ITB for processing

14 52 Message to Wales — Helicopter will be taking patients to Prince Henry Hospital — not to Wales.

15 14 Message to Control — Contact Navy divers so that they may collect water samples and bring to AFC staff at gate 30

15:40 Wales transmits list of casualties to EOC

15:54 Message to EOC 173 injured and 43 processed at ITB, 16 deceased, 77 injured, 2 persons arrested for trespass. All sites closed down now.

16 11 Exercise officially completed at 16 01.

LESSONS LEARNED

Taking part in this important exercise gave WICEN insight into the requirements that will be placed on it when a call-out for an emergency occurs. Without such exercises it is impossible to maintain an efficient and effective organisation.

The main lessons learned during this exercise were —

1. The instant recognition provided by the green VRA helmet is vital in obtaining access and operating within an emergency area.
2. All messages must be accompanied by a Date-Time-Group and Signature so that they can be identified and verified.
3. All Police Officers in charge of sections where WICEN will be operating should be briefed on WICEN's capabilities to ensure that WICEN is used to its full potential
4. When the new Emergency Operations Centre is established, it is suggested that WICEN be permitted to install an aerial and cable. Not only will this enable a faster response but will also enable WICEN to provide links over a large area using VHF repeaters at Gosford, Blue Mountains, Oberon, Mittagong and Wollongong
5. Considerable coverage can be obtained using battery-powered simplex VHF so that mains failure will not affect the service. All stations could access the Heathcote repeater using hand-helds with short aerials but it was decided that the exercise would be more useful if the repeater was not used
6. Lightweight headsets are useful in keeping the operator's hands free for message writing, etc
7. Noise-cancelling microphones are the only practical means of transmitting effectively in noisy areas; e.g. near aircraft operations, public address systems or sirens.
8. Headphones or ear-pieces are necessary for effective reception in noisy areas and to prevent excessive noise being generated in quiet areas, e.g. survivor holding room or EOC. They may also extend battery operating time by reducing current consumption.
9. An effective clipboard is required to hold forms and log sheets if message writing is to be carried out outdoors. Carbon copies should be made for received messages so that the original can be kept by the recipient.

10. WICEN is suited to handling non-urgent traffic which could cause excessive delays on the main operations channels

11. Formal traffic for transmission by WICEN should be written by the originator

12. Operators must be versatile and flexible and be always ready to change operating procedure and network structure instantly as new requirements arise

13. The operator must judge whether the message is urgent and speed is most important, or is formal and accuracy most important

14. WICEN must have an effective alert and call-out system if they are to be available in actual emergencies within a reasonable time

POLICE COMMENTS

Following the exercise debriefings were held by the Police and by the Department of Transport for all groups involved

Superintendent K Baret who had overall control of Police involvement in this exercise, used the following words to describe WICEN's participation —

"The contribution by the volunteers of the WICEN Group of radio operators proved the worth of mature, qualified and responsible volunteers and by setting up communication bases at hospitals, the International Terminal Building and at the crash sites, were able to lighten the load of the Police Radio Operators considerably in handling a substantial volume of messages.

"They are to be commended for their contribution."

WICEN is grateful for Superintendent Baret's active support which enabled volunteer communicators to take part in this professional exercise for the first time. Sergeant M. Rigg of Police Communications was invaluable in helping WICEN prepare for this exercise.

HOW TO GET INVOLVED

If you are seriously interested in using amateur radio to provide a community service during emergencies you will need to consider the following requirements:—

1. Be prepared to accept commands from Police Officers or senior WICEN personnel during exercises and activations
2. Be fully experienced in providing a communications service using formal procedure, abbreviated procedure or urgent procedure. Normal amateur procedure is totally inadequate in providing an emergency communications service
3. Regularly take part in emergency exercises organised by WICEN — the only volunteer communication group recognised by NSW Police, NSW State Emergency Service and Department of Communications. Without this regular practice you will not have the necessary skills, as everyday amateur practice involves no experience in the skills required to provide a reliable communications service

A Review of the FT780R Transceiver

Gil Sones VK3AUJ



The FT780R is the latest release from Yaesu in the line of small multimode transceivers. It is a worthy companion to both the 2 metre FT480R and the 8 metre FT880R.

The operating features in all these are similar as they have very similar computer control systems. This computer interfaces the panel controls dial and frequency display to the phase locked loop circuitry used for frequency generation.

Thanks to the central system features like dual VFOs, scanning, memory channels, priority channel and repeater offset are a breeze.

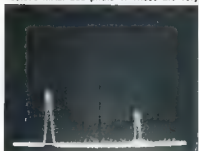
One hint to band conditions in other parts of the world is the ability to search for a clear channel. This is hardly needed locally where one has to scan to find a busy channel even on the repeaters. Indeed in Melbourne one must know where the 70 centimetre repeaters are to find them in a reasonably short time. At the time of test, June 1981, only the VK3RAD repeater was initially found, although two others lay hidden in the silent band.

Aside from the operating features which are excellent the receiver hides a new development beneath a fairly bland hand-book sensitivity claim. Yaesu have placed a Gallium Arsenide Dual Gate Mosfet right up front and they have backed it up with an antenna change-over relay and a real type N antenna connector. With a 0.5 microvolt signal in the SSB mode an excellent 23 dB signal plus noise to noise ratio was obtained, whilst on FM a 1 microvolt signal gave a 37 dB signal plus noise to noise ratio.

These receiver sensitivity figures would look good on many 2 metre rigs let alone on a 70 cm rig, and they are better than those claimed in the book. Further receiver tests yielded an image rejection of 75 dB and found that S9 on the line of LEDs used as an S meter represented a 10 microvolt signal with S1 being registered on a 1 microvolt signal. S5 was 2.5 microvolt signal and S3 was a 1.5 microvolt signal.

The S meter is in fact a line of LEDs which double up on transmit as a power output indication.

One interesting discovery when testing the rig on the spectrum analyser was the local oscillator leakage. This was at a very low level, being -46 dBm for a received frequency of 430 MHz and dropping to -59 dBm for a received frequency of 439.975 MHz. See photo 1. These are very



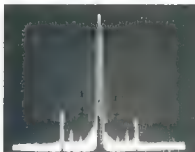
Receiver Local Oscillator Leakage. Reference 0 dBm. Outputs for 430 MHz Rx and 439.975 MHz Rx. 2 MHz/div. horizontal, 300 Hz bandwidth.

small signal levels which would also be found on most equipment. They are much smaller than the local oscillator signals sometimes used in the past to track the fox on one sixteenth the frequency.

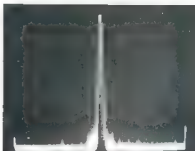
The transmitter uses one of the RF power amplifier modules. Yaesu once again hide the true performance by quoting an input power in one place and referring in another to 10 watts output. The transmitter produced an output of 14.5 watts at 430 MHz, which dropped slightly to 13.2 watts at 439.975 MHz. This is quite a good result for a nominal 10 watt rig. The output is all on the intended frequency as the spectrum analyser showed with the spurs being within the FCC limits for sale in the USA. See photos 2 and 3.

The indicated frequency was within 900 Hz of the measured frequency which is

better than many two metre rigs and is well within specification.



Transmitter Output. Frequency 439.975 MHz. 6 MHz/div. horizontal, 10 dB/div. vertical referenced to max. output.



Transmitter Output. Frequency 430.0 MHz. 5 MHz/div. horizontal, 10 dB/div. vertical referenced to max. output.

On air the FT780R worked well, both on SSB and FM. Some FM reports found the mic gain a trifle high with car noise intruding. This is a simple adjustment, however which does not affect the deviation of the signal. Yaesu have provided both a mic gain control for FM as well as a maximum deviation control. Sounds complex, but it is simple and it is preset.

On the repeaters the receiver sensitivity and the transmit power was nicely balanced.

The microphone has buttons which allow the operator to move up or down in frequency, and interesting features are that scanning may be stopped by touching either up, down or even the PTT button. In this instance the PTT button stops the scan and must then be pressed a second time to transmit.

Another interesting feature is the satellite switch which permits the user to shift frequency on transmit. Useful for satellite operation where doppler shifts have to be compensated.

One feature which is not used in Australia is tone burst. It is provided though and it is crystal locked.

A number of tuning steps are provided with 10 Hz being the smallest on SSB. This makes accurate tuning easy. A quicker 100 Hz step is also provided and the dial indicates to 100 Hz. You may also tune in kHz on SSB. On FM a fast tune position gives 100 kHz steps but the intermediate steps of 25 kHz are well adapted to the local channel frequencies.

Indeed if you are not afraid to lift the lid and apply a delicate soldering iron you may adjust the size of the frequency steps quite simply. This is a feature of this series of Yaesu processor controlled rigs which is not generally available to other processor controlled rigs.

The dial resets to 435 MHz when you remove the DC power to the rig. However if you leave DC permanently connected you may preserve the memory by throwing a switch on the rear. With 100 kHz steps available, tuning to frequency is rapid if you don't hold the memory by leaving power on the rig continuously.

The FT760R is indeed a worthy companion to the FT480 and the FT680 and it is certainly the 70 cm rig to beat. The only snag in Australia may be the price due to our customs. Imported on the same basis as 2 metre and 6 metre equipment the price would be very attractive.

The FT760R being reviewed attracted a lot of interest and sales should be brisk. The performance obtained could not be bettered except at very considerable additional expense and with a lot of fiddling.

The review FT760R was provided by Stan Roberts of Ball Electronic Services. Tests both on the air and on the test bench were performed thanks to Kevin Phillips VK3AUQ.

A Global Navigation System

To track a Great Circle route exactly (the shortest distance between two points on the earth) is every navigator's ambition. VLF Communication Stations and OMEGA make this possible. The lower "d" layer in the atmosphere (70 km day, 90 km night) reflects VLF transmissions and together with earth's surface gives a spherical band around our globe — a near perfect waveguide. VLF transmissions, locked to a caesium atomic clock, are phase stable, capable of long range and, unlike VHF, can be used at tree top height of 40,000 ft. or so. They are so stable that it is possible to determine standard time at any point on the earth's surface to one microsec.

Nine VLF transmission stations (like our NW Cape) use frequencies between 14 and 24 kHz (yes, kiloHertz) and radiate up to one million watts. Eight OMEGA stations transmit pulse sequences on 10.2, 11.33 and 13.6 kHz (imagine the size of the aerial system), with an identifying carrier frequency in such a format that no two stations are on the same frequency simultaneously. This format from eight stations (Gippsland will be one!) repeats every 10 secs. — radiating ten thousand watts on, say, 10.2 kHz for 1.3 secs., 11.33 kHz for 1.1 secs., and 13.6 kHz for 9 secs., plus ident carrier for 5 secs.

The Airborne (or Seaborne) Receiver, with its oscillator stabilized to the transmitter frequency, sets a basis for comparison of the phase of the signals occurring at its position. With many stations, therefore, a matrix of constant phase lines is interpreted. Also, in this way station redundancy (a strike?) only results in minimal inaccuracies. A computer then determines which stat on has sent which signal, and in the recent Mark III GNS500A presents a CRT display of eight lines and 14 characters to the pilot. The computer also has in memory ten flight plans. It computes the position every ten seconds by an optimum selection of the stations available to it, and updates the display, with bearing, track and distance to run; also supplying a correct signal format for the autopilot system.

Although developed in 1970 first, and now in use all over the world, the system is not certified in Australia by Transport Australia. However, with special departmental dispensation the system can be used. On December 3, 1980, Ansett Airlines of Australia, Boeing 727 VH-RMO on the inaugural Hobart to Christchurch flight, was the first aircraft (carrying passengers) in the world to use the latest GNS500A Mark III VLF OMEGA — an 18 kg (40 lbs.) system (one quarter the weight of a human navigator).—Condensed from "Aircraft", by Dave VK2ZEN (retired Ansett pilot). (The "Lyrebird", winter 1981.)

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QSP

10m BAND

From 18th June, 1981, US amateurs will be allowed to use full power (1000W max. DC plate input) in the band segment 1800 to 1900 kHz. Some power and operating restrictions will continue in some parts of the USA for the segment 1900 to 2000 kHz to protect LORAN A systems operating in E. Canada. A1 and A3 emissions remain in effect for the entire 160m band. Worldradio, July 1981.

UNBEATABLE

**"DICK SMITH guarantees to
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Look at this superb FT 101Z. And what a transceiver! It includes variable IF bandwidth, built-in HF speech processor, all current HF bands (inc. WARC), 180W output SSB/CW & AM/CW/SSB operation.

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\$795**

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What a performer packed into such a tiny package. This brilliant new FT 707 is one of our fastest sellers. And why not, it's a full power all HF band (including WARC) multi mode transceiver not much bigger than the average 2 metre mobile. Look at what you get: digital display, LED S/power meter, push button operation... all the things the amateur needs for reliable mobile operation. Teamed with the D 2895 power supply makes it a must for the discerning amateur. Do yourself a favour & check it out at one of our stores & compare it with other similar units on the market today. You'll be pleasantly surprised.

ONLY \$769
WAS \$785.00

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TRANSCIVER**

Cat D 2869



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LAST CHANCE TO BUY**

**The
incredible
FT-7B**

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ONLY
WAS
\$599.00**

**SAVE \$30.00
\$569**

Cat D 2868

NEW! NEW! NEW! NEW! NEW!

VHF Handy FM Transceiver FT-208R

The FT 208R transceiver brings a new flexibility to today's active 2M operator. An easy to read LCD display is coupled with a 4 bit microphone assist, bringing 10 memories & a scanning function. Only with Yaesu can you get these important features at such an economical price. Check it out NOW.

Cat D 2885



**ONLY
\$369**

**ALL MODE
FM SSB CW
ONLY \$395**

Cat D 2885

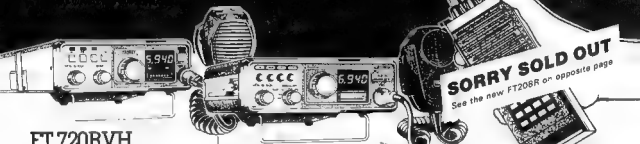
2 METRE PORTABLE FT 290R

The FT 290R is a highly sophisticated compact multi mode transceiver for the 2M amateur band. Featuring PLL synthesis in 100Hz, 1kHz, 5kHz, or 10kHz steps. The FT 290R utilizes a Liquid Crystal Display for digital readout for the operating frequency, 10 memories, scanning of the band or memory channels, two VFOs & receiver offset tuning makes the FT 290R a signal centric breakthrough in technology. So be quick, these are going to go fast! Don't miss out!

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FT 720RVH

Yaesu brings you the flexibility and performance you need in today's amateur world. The FT-720RVH not only gives you top performance, it's also the most flexible Yaesu transceiver it comes apart so you can locate the microprocessor controlled works close by you, with the RF end out of the way. Or just as easily snap the two sections back again for a complete transceiver. That's versatility! This great little performer gives you scanning, 3 memory channels, LED Fm/S meter, 25W output & fu. 144 .48MHz operation & much, much more. A must for the person who lacks space in the mobile!

WAS \$450.00

NOW
\$370

SAVE
\$80⁰⁰

Crit. D 2890

YAESU'S FT 227RB

One of the most popular Yaesu transceivers we have ever had the pleasure to operate, the incredible FT 227RB. This classy PLL scanner will take you anywhere within the 2 metre band instantly just press the scan button on the microphone - not bad hey! No need to worry about reaching for the select switch in heavy traffic. And you have 4 memory channels to choose from, with a 600kHz repeater split for working standard repeaters or 4MHz split for unusual repeaters or requirements. For value for money, you can't go past the FT 227RB. It's a winner!

WAS
\$379.00

NOW
\$329

SAVE
\$50⁰⁰

Crit. D 2891

2 Metre Handheld FT 207R

Imagine a hand-held 2 metre transceiver with all the punch of the big guys - with digital display 800 channels, 4 bit CPU chip for frequency control, 4 memory channels, repeater split, auto scan, up or down, we guess we 6809. How does it perform? How about 0.32uV sensitivity at 7.5kHz selectivity, 50dB, or a power output of 25W (mu). So what are you waiting for, go on, indulge yourself with this little beauty.

WAS \$358.00

NOW
\$308

Crit. J 2888

SAVE
\$50⁰⁰

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LAST CHANCE TO BUY!

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Amateur Radio October 1981 Page 17

Chitary Moriyama JH6THP

R. P. Mills VK5XW Chairman, Pacific Amateur Radio Society
13 Taylor Terrace, Rosslyn Park SA 5072

Chitary is 31 years of age (21/8/81) and is an in-patient of room 11 at Kawatana National Hospital, Japan. He contracted muscular dystrophy when he was six years old and at the age of 11, because he no longer could walk, was forced to give up formal schooling at year 4. He was encouraged to continue with private studies by his family, especially by his father, who spent a great deal of his time educating Chitary. He commenced studying English by listening to radio NHK and reading English textbooks. He became a full time patient in Kawatana hospital at the age of 22 years in an attempt to arrest the spread of the disease. Chitary became interested in amateur radio, so special tuition was arranged at the hospital for him by the JARL so that he could study and obtain his licence in 1974 he established a club station in the hospital and called it "Cosmo Friend". Membership now has grown to 24 due to Chitary's initiative and the encouragement given by the hospital administrator, Dr. Y. Nakazawa, to make use of amateur radio as a therapeutic aid.

Chitary started operating in room 11 under his call sign JH6THP and very soon became very well known to the Australian amateurs, at the same time rapidly improving his English conversation with a slight Australian accent. At first Chitary had a great problem in understanding the Australian idiom but to his credit he now speaks fluent English. In 1975 he had his first VK visitors with VK2XT and VK3CO travelling out to Kawatana. They were followed in 1976 by VK5RB and VK3AL. In this year Chitary received a letter of commendation from the Australian Ambassador in Japan with regard to his activities in fostering friendship between JA and VK amateurs via the medium of amateur radio. In 1977 Chitary was visited by VK2BHZ and again by VK2XT. He became a member of the Japan-Australia Society in Nagasaki and founded the Pacific Amateur Radio Society (PARS), of which he is still the net controller of the weekly net held each Sunday evening at 0900Z on 14.2600 MHz. The idea behind PARS was to promote and foster friendship between amateurs in the Pacific area with emphasis on JA-VK-ZL. Chitary visited the Australian Embassy in Tokyo meeting the Australian Ambassador and receiving a letter of commendation from the Australian Minister of Communications. This story appeared in AR September 1977 by VK3CO. In 1978 Chitary upgraded his licence to second class, allowing him to use 100 watts and 20 metres. He also became a member of the prestigious Pacific Society of Japan.

In 1979 Chitary travelled to meet VK3SB, who was in the port of Nagasaki with his family on a ship cruise. As Bill VK3SB was the first VK station that Chitary worked



after obtaining his amateur licence the "eyeball" was of special importance to him. VK3CO made a second visit to Kawatana. The Nagasaki Prefectural Government presented Chitary with an award for his services in fostering friendship via amateur radio.

In 1980 the Pacific Society created a Radio Equipment Donation Programme to supply free of charge completely equipped radio amateur stations to nations in the Pacific area that were gaining their independence. Chitary was appointed co-ordinator of this programme, supplying the Pacific Society with the needs of station equipment required by the newly independent nation. When Vanuatu received a grant of amateur equipment from the Pacific Society Chitary acted as the Master of Ceremonies for the on air celebrations of Vanuatu's independence. Chitary considers that his part as M.C. in this celebration to be the highlight of his amateur life.

He was visited by VK5XW and his wife, Dorothy, at Kawatana in June, 1981.

Apart from his involvement in amateur radio, Chitary manages to find time to teach English to inmates of the hospital, study Spanish and hold the position of Vice-President of the Hospital Patients' Union. The Union helps to improve hospital life for the patients such as upgrading recreation facilities, patient treatment, etc., not forgetting the hospital meals. Chitary admits that he goes home on holidays whenever he can so that he can enjoy his mother's cooking as the hospital meals become very monotonous.

From the time that Chitary first became involved with Australians on amateur radio he had the dream of visiting this country, meeting the friends that he had made, visit

WIA Headquarters, attend a monthly meeting of the WIA and, if possible, visit a large rehabilitation hospital for the disabled so that he could talk to the patients using his experiences with amateur radio as an example of what can be done to make up for physical disabilities. In 1981 Chitary applied to the Australia-Japan Foundation for a travel grant to assist him with his ambition to visit Australia. Many weeks were spent in preparing the necessary application, as Chitary can



Chitary's antenna in grounds of Kawatana National Hospital, Nagasaki.

only operate an electric typewriter by fabulously pressing one key at a time with a choickstick held in his mouth. Chitry was overjoyed to learn recently that he had been succesful in obtaining a very generous grant from the Foundation. This will allow him to come to Australia early in November 1981 for approximately three weeks, during which time he will spend 10 days in Sydney, 3-4 in Canberra and around 10 days in Melbourne. The exact timetable of the tour will shortly be finalised. Any VK stations that would like to meet him in person are advised that he has now "eyeball" managers in the three cities who can be contacted on the following numbers for information regarding Chitry's movements. Sydney VK2BKD, (02) 523 0246; Canberra VK1GD, (082) 54 1987; and in Melbourne VK3BER, (03) 787 5721. Chitry can also be contacted most days, in the morning on 15 metres, for approximately half an hour on 21.1800 MHz from 2200Z and in the evenings on 14.2800 MHz at 0900Z also for approximately half an hour. As Chitry is totally dependant on another person for his needs he will be accompanied by his younger brother, who will take care of him on what will be a very strenuous but satisfying and exciting experience for both of them.

On 10th July, 1981, Radio Japan made a broadcast on their service directed at the Australian and New Zealand listener of an interview made by NHK with Chitry. Apart from giving a very good insight into Chitry's life, the 15 minute interview was a very good public relations exercise for amateur radio, particularly with regard to its therapeutic value to handicapped persons and its ability to create friendship, good will and understanding between peoples of different cultures. Chitry handled these topics to very good effect and he is to be congratulated for being such a good ambassador for amateur radio.

FOOTNOTE

Chitry's itinerary for his Australian tour has now been finalised. It is:—

Sydney: 4th-12th November.

Canberra: 12th-17th November.

Melbourne: 17th-27th November.



Kawarana Hospital Club Station JA8ZCY, with Author, XYZ and JH6THP.



From left: Author, JESWZJ, Chitry, JA6IUY, Dorothy Mills and another patient.

Q&P

"CONVERSATION"

Conversation whether by speech or code, is an important aspect of communication and this is expressly demonstrated by the amateur in almost every QSO. When we meet one another face-to-face we radiate additional information without words. Gestures and signals — a hearty handshake, a smile, a frown, a nod, a shake of the head, the expression in the eyes — all combine to support and strengthen the effect of the spoken message.

Devised of the "eyeball" advantages, out-of-sight contacts rely for impact and attention-holding on the subject matter, the voice quality and sincerity. We can't claim to have golden "Acronous" voices (some of us have rusted up), but we can perhaps do something about it. A pleasant type of voice helps a conversation enormously because the voice is the only method of expressing the radio speaker's feelings.

The person with a rich store of knowledge and a wide experience, such as many of our older amateurs have, is guaranteed to hold the interest of his listeners. Being natural and sincere are the hallmarks of a good conversationalist. The person who combines with topics of interest will always hold the attention of listeners. Some of us tend to forget that on the air we are talking to a wide audience — amateurs working in their shacks, short-wave listeners, off-times captive audiences in many radio stores (where amateur rigs are frequently tuned in for the benefit of potential customers), and in a score of homes and vehicles where mixed audiences, women and children, are sometimes subjected to crudities of conversation best left for an "eyeball".

Exchanges of ideas seem to nourish our lives. Pluto said, "Talking with people is not only fun,

it is good for you". When people talk together honestly, we are refreshed — problems off-times solved. This is true in our marital relationships as well as in day-to-day business or relaxation activities.

Semantics is the study of the meaning of words, and students of semantics know that different persons give different meanings to the same message. We must be aware of this, particularly in emergency situations. "Messages" to be relayed must not be subtracted from or added to, or varied in any way" (VK2NL, WIGEN State Coordinator).

We should keep away from contentous matters — there are some "sore spots" which many would rather not talk about. We should think before speaking, and endeavour not to cause offence to any especially keep in mind our potentially large listening audience. —John VK2BTO. (Editorial in "Lyrebird", Winter 1981.)

A Simple Drain Dip Oscillator

Bob Tait VK3YSH

Reproduced by arrangement from
"The Rad o Bulletin", Jan./Feb. '81
(EMCRC Newsletter)

The grid dip or drain dip oscillator is probably the most useful piece of equipment in any ham shack. The principal use of this versatile instrument is the determination of the resonant frequency of a tuned circuit, it can also be used to find unknown values of L and C, check serials, multiplier, stages, and as an added feature the DDO can be used as an absorption wavemeter. The frequency of operation is 3 MHz to 50 MHz covered in 4 ranges.

Operation: Adjust VR1 until the meter reads half scale, hold the instrument so that L1 is loosely coupled to the circuit under test, adjust VC1 until a dip is found. The depth of the dip will vary in accordance with circuit Q or degree of coupling, however, for more accurate reading loose coupling is desirable.

COILS

50 — 20 MHz 10 turns .022 in. 12 mm diam.
30 — 12 MHz 20 turns .022 in. 12 mm diam.
12 — 5 MHz 50 turns .008 in. 12 mm diam.
8 — 3 MHz 90 turns .006 in. 12 mm diam.

All coils are close wound and centre tapped.

The coil bases were constructed using 3 pin audio plugs, the former was anchored to the base using 3 hooks formed out of tinned copper wire (see Fig. 1) and soldered into the base.

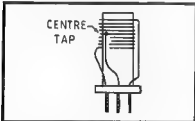


FIG. 1

The tuning capacitor was a 2 gang BC type as used in Japanese transistor radios. I removed every second plate until I achieved the required capacitance.

In order to keep spurious responses to a minimum all the oscillator components were mounted on a tag strip on the tuning capacitor, the leads to the coil socket were soldered onto the tuning capacitor (see Fig. 3).

The case is 120 mm x 70 mm x 40 mm and prefabricated from aluminum sheet, an insulated handle was fitted as an added safety feature when checking active circuits.

CALIBRATION

The dial is made from PC board with the 4 scales glued on, the dial is 60 mm in diameter (see Fig. 2).

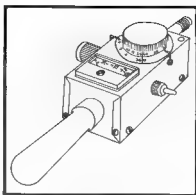


FIG. 2

A BC221 frequency meter loosely coupled was used for calibration and then rechecked on a general coverage receiver making sure harmonic response was not being obtained.

TO FIND INDUCTANCE

A tuned circuit using a 100 pF 1 per cent SM capacitor and the unknown L is tuned to find the resonant frequency. L may then be calculated from—

$$L = \frac{25330}{100 \times F^2}$$

Note F in MHz.

e.g. F10 MHz

$$25330/100 \times 10 \times 10 = 2.53 \mu\text{H}$$

To find capacitance: Tuned circuit as for L. A 5 uH inductor can be constructed as follows 25 mm former, 24 SWG wire, 6 turns close wound, leave 3 mm, wind 6 more turns, ends 25 mm long.

$$C = \frac{25330}{5 \times F^2}$$

$$\text{e.g. } 25330/5 \times 10 \times 10 = 50.6 \text{ pF}$$

N.B. If coils need turns adding or subtracting to achieve the correct frequency coverage, this must be done symmetrically about the centre tap.

No claim is made for the original circuit, which is believed to be of UK origin. My DDO has given good service for 2 years.

73s. VK3YSH.

PARTS LIST

R1 — 100K.

R2 — 220R.

R2 — 220K.

R3 — 27K.

C1 — 0.1 Disc Ceramic.

C2 — 100 pF Tub Ceramic.

VR1 — 500R Lin Pot.

VC1 — 176 + 176 pF.

1 — MPF 102 or equiv.

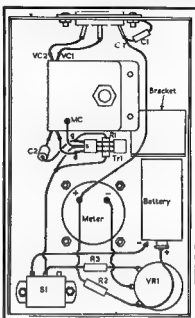
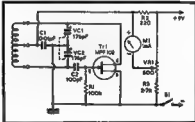


FIG. 3

- 1 — 0.1 mA Meter.
- 3 — 3-pin Plugs.
- 1 — 3-Pin Socket.
- 1 — Off/On Switch.
- 4 — 12 mm Formers.



Circuit

QSP

CB IN UK

One of the responses to the Home Office Open Channel proposals came from a PCB assembly system manufacturer who said that TV Band 1 should be used for public radio telephone and CB throughout Europe 48.25 to 57 MHz for fixed radio phone, 57 to 58 MHz for 80 CB channels at 12.5 kHz spacing, and 58 to 66.75 MHz for mobile radio telephone. A total market of 3.5 million sets by 1986 if that comes about there will be no chance of 6 metre contacts with Europe, ever.

Another proposal from a leading telecommunications manufacturer is to use a band of frequencies between 32 and 500 MHz with a preference for the segment 430 to 450 MHz as being the most compromise between performance and interference. Just another straw in the wind — just note the preferred band 2L1HV. (Break-in, June 1981.)

VK2 MINIBULLETIN

COUNCIL REPORT

At the August Council meeting two clubs were accepted for affiliation with the NSW Division. Welcome to Orana Region Amateur Radio Club and Shoalhaven Amateur Radio Club. There are now 31 clubs affiliated with the Division.

Council has decided, following recommendations from the NSW WICEN committee, to buy crystals for the primary WICEN frequencies of 3600, 7050 and 14100 kHz for use in the SSB transmitters at Dural. This will enable operation from Dural by WICEN during emergencies.

The next Divisional auction will be held at 14 Alchison Street, Crows Nest, on Saturday, 7th November, at 1 p.m. Members with items for auction are asked to deliver them between 10 a.m. and noon on the day of the auction.

Council will present a new award at the next Conference of clubs, to be held in Wollongong on Sunday, 1st November. This award, the Dick Smith Award, will be presented to the "1981 VK2 Educator of the Year". Clubs and members are invited to send nominations for this award to Divisional Council.

Council would like to remind all members that the frequencies of 144.1 and 148.5 MHz are recommended as calling frequencies. Please move to another frequency after your initial contact has been made on either of these frequencies.

DOC Canberra has advised Council that they "are looking into the matter" of daytime transmissions of the TC channel 0 test pattern in Sydney.

TOWER APPEAL

The appeal by Mal Martyn VK2VWG against the rejection by Campbelltown City Council of his application to erect a 17m guyed tower for amateur use was heard in the Land and Environment Court, Sydney, on Tuesday, 21st July last. The court's decision was handed down on 14th August. Mr. Martyn's appeal was dismissed. The reasons for the rejection of the appeal were "The Court is of the opinion that in this setting the proposed 17m high radio mast and large antenna would have a dominating and overbearing effect on persons in the adjoining properties in particular, and probably adjacent properties also. The proposed structure would be out of character with the development of these properties and would injure the amenity of the locality". After obtaining legal advice, it appears there are no grounds on which Mr. Martyn can appeal against this decision.

Mr. Martyn has advised he may be applying for permission to erect either a crank-up tower, which can be lowered during the day, or a smaller fixed tower and antenna. Mr. Martyn thanks all those who have so generously supported him in his appeal.

All those who donated to the appeal have been sent a copy of the decision, where their address has been known. Any member who would like a copy of the appeal decision can obtain one by sending a large stamped self-addressed envelope to the Divisional Secretary, PO Box 123, St. Leonards 2055.

Many thanks to those who have recently donated to the Tower Fund - I. McArthur \$20, F. Hine \$10, R. Tinker \$5, Goulburn ARC \$20, D. Thompson \$25, VK4 Division \$100, A. McDonald VKATE \$5 and R. McKew \$10. A report on the court costs and results of the lower donations will be in next month's Minibulletin.

REPEATERS

Repeater Co-ordinator Tim Mills VK2ZTM reports that Shoalhaven ARC put their new repeater VK2RSD to air on channel 7200 from Mt. Cambewarra, near Nowra, on 23rd August last. The Tamworth ARC repeater has had a frequency change from its originally licensed channel of 7250 and now operates on 6750. DOC Sydney has been asked for conditions of operation for a UHF ATV beacon. Many other VHF and UHF applications are at present being considered by the Repeater Committee. Further report next month.

JOTA 1981

The Scout/Guide Jamboree of the Air will be held this year on Saturday and Sunday, 17th and 18th October. The NSW JOTA Co-ordinator is Phil Card VK2ZBX, PO Box 182, Bondi 2026. Phil can be contacted at work on (02) 699 9535. Please let him know of any activity you or your local club will be conducting for JOTA. From Liverpool ADARAC comes news of one station that will be operating from Campbelltown. Club President John VK2KDJ advises that the club will be conducting a station over the full 24 hours using the club's call sign VK2AZD/P. The site of the station will be the Elizabeth Macarthur Estate, which is part of the estate upon which the Australian wool industry was started. The station will be combined with the District Scout Camp, with visitors coming from some of the surrounding districts. This will involve approximately 600 Scouts, Venturers and Guides, many of whom will be camping at the site. Any local amateurs who can assist at the station, especially with the provision of specialised amateur modes, can contact John on (046) 25 6607 or via one of the club nets which are held on Sundays 9.30 a.m. on 3580 kHz, or Mondays 8.30 p.m. on 146.55 MHz.

BLUE MOUNTAINS FIELD DAY 1981

This year the Blue Mountains Amateur Radio Club will be conducting their annual field day on Sunday, 15th November, at Springwood High School, Chapman Parade, Faulconbridge. All the details for the day have not been finalised as yet (31/8/81), however the usual facilities of food and rinks for sale, all weather display area, fox hunts, talk-ins, ladies' and children's events, etc., will be provided. For further information and a programme,

please contact John VK2VPG via PO Box 54, Springwood 2777, or phone (047) 39 3615.

News of two newly affiliated clubs

ORANA REGION AMATEUR RADIO CLUB

C/- 63 Derribong Street, Trangle 2823. Meetings have been held on last Wednesdays, 7.30 p.m., at Orana Education Centre, Dubbo.

Classes, Tuesdays, 7.30 p.m., Dubbo Police Boys' Club, Darling Street, Dubbo.

President: J. Hams VK2ZMT; Vice-President: P. Harrison VK2CAZ; Secretary: K. Kinsey VK2VAS; Other Committee: P. Heywood VK2VEH, T. Hanson, E. Brodrik CK2BEO, C. Kearnes VK2AKC

SHOALHAVEN AMATEUR RADIO CLUB

PO Box 621, Nowra 2541. Meetings: Friday, 7.30 p.m., Cnr. Birrell and Coomea Streets, Bomaderry. Classes: Morse conducted by D. Courtney VK2AUC, theory by M. Garth VK2ZLX and R. Penalurick VK1KAB.

President: W. Jarvis VK2BUY; Secretary: J. Walker VK2AJT; Treasurer: S. Rigney VK2BRZ.

Repeater: VHF VK2RSD, channel 7200, at Mt. Cambewarra, near Nowra.

COMING EVENTS

Saturday and Sunday, 17th and 18th October Jamboree of the Air.

Sunday, 1st November: 5th Conference of Clubs at Wollongong

Saturday, 7th November Divisional Auction, 1 p.m.

Sunday, 15th November: Blue Mountains Field Day at Springwood.

Saturday and Sunday, 14th and 15th November: WICEN Regional Co-ordinators' Conference.

NSW members and clubs are invited to submit news for inclusion in this column. News for December AR should reach Box 123, St. Leonards 2055, by 28th October.

Susan Brown VK2BSB.

VK4 WIA NOTES

GENERAL MEETING

The October meeting will be held on Friday 16th in the Playground and Recreation Association Hall at the corner of Love and Water Streets, Valley. An interesting lecture has been arranged and, as usual, the Bookshop and QSL Bureau will be open for business. The November meeting has been set aside for a "bring and buy" disposals night, so start sorting it out now. These nights are very popular — visitors welcome.

EARLY DAYS

The Divisional Historian Peter VK4PJ is starting to get some results with his efforts to record the early days of amateur radio in Queensland. There are still many gaps in the story. Perhaps you can help com-

plete this history. Please drop Peter a line or give him a ring (QTHR). Perhaps arrangements could be made to send you a blank cassette tape.

SUNSHINE STATE — JACK FILES MEMORIAL CONTEST

The State Contest Manager Bill VK4XZ has advised the results of the 1981 contest.

Section 1a, Tx all bands: Bernie VK4ABY.

Section 1b, Tx HF only. Alan VK4AJZ.

Section 1c, Tx VHF only. Ross VK4KRM.

Section 1d, Club stations: Sunshine Coast ARC, VK4WIS.

Section 2, Outside VK4 Jim VK2BQS.

Section 3, Receiving. Charles Thorpe L40018.

At attractive trophy has been forwarded to each winner. Many difficult to get shires were activated for this contest and perhaps there will be some new applications for the Worked All Queensland Awards.

INWARDS QSL BUREAU

Incoming cards have been held for some time in the posts but are now starting to comethrough. This unnatural drop in input has permitted the Bureau workers to clean up the backlog. How do you get your cards? Having them sent via your local radio club is easier on the Bureau and cheaper for you too. Cards can be sent to you direct if you establish credit with the Bureau. However you choose to do it, please make sure that you let us know — there are quite a number of cards awaiting details of the owners. Look in this month's QTC for "Tom's Hit List" and make sure that you are not "mentioned in despatches".

RECRUITING CAMPAIGN

Council has established a Recruiting Committee for the purpose of finding ways to increase membership in the Institute. A number of avenues in the State are being pursued, including a contest to try and stimulate ideas for development. The major priority is to conduct a mailing campaign using the November "Amateur Radio" issue as a base and adding recruiting material, etc. This permits the use of cheaper bulk mailing rates and hopefully beats the upcoming increases. Efforts are being made to convince Federal Executives and other Divisions that this potentially cost effective campaign deserves their support as a nationwide exercise. There are a lot of potential members out there waiting to be contacted. ■

THE WIA BULLETIN

Hi folk. Well, after a brief pause for industrial action, or was it inaction, here we are again.

Our action this month seems to be mainly in the north of the State, where, if my information is correct, it would appear that John VK6GU has stirred up some enthusiasm for two metre operation among

his confederates in Wyndham, to such a degree that an application for a repeater licence has been lodged with DOC. Probably by the time your tired old optics scan this, VK6RWH will be in operation. Should prove quite handy with all the tourists on the move "round the top" these days. Well done, fellers — keep it up.

Moving a little further south, we come to the area of bananas, tomatoes and tracking stations — not necessarily in that order. They also have a decent sort of high school there, too; if you don't believe me ask Peter VK6APS. You could also ask the Premier of Western Australia, Sir Charles Court, who was recently on hand to officially open the school's own station VK6ACH. Here is what Sir Charles said in performing the opening ceremony.

"Good afternoon everyone — it's wonderful to be here at VK6ACH. I've got some great enthusiasts around me here and I'm sure they're going to have a lot of fun operating this station and also learn a lot from it. There's something very special about radio of this kind because we can often talk to people who otherwise we might never meet, but somehow or other you can build up a great affinity with them. At the same time you learn a lot about the magic of modern technology, in fact you take some of the magic out of it when you understand what it's all about, and for all of this I want to say congratulations to those who have been responsible for the development of VK6ACH. I hope that they and all of their friends with whom they communicate will have a wonderful time and will, as a result, not only bring about great friendship but also will bring about greater understanding of what things are about. The people from Carnarvon and the Gascoyne will be able to talk to people in other parts, explain to them what they are doing and what the district represents, what it's doing for the State, what it represents within the nation, and in turn get a communication back from other people, and thus remind us that we have a great inter-dependence one on the other. We're not just islands in one place or another within our State or within Australia, but we are in fact people within a great nation and people within a great State. And so to all of you, thank you for what you have done to make this possible and every good wish for the future, and on that note it is my pleasure on this day, the 3rd of July, 1981, to declare VK6ACH officially opened and in business." Reports would indicate that the station is well set up with a satellite "dish" on the roof, data transmissions, visual display units, etc. (See September AR for a feature on VK6ACH.—Ed.)

Due largely to the enthusiasm of Fred VK6FH, permission has been granted for the re-broadcasting of the VK2 RTTY news service in VK6 each Sunday, so if you have not yet had the opportunity to do so try to catch this service on two metres next Sunday.

How did you go in the RD Contest? Hope you all submitted a log, could be

that VK6 is in with a chance this year!

The North West Amateur Radio Club seems to be gaining momentum and there was more than a strong whisper of another repeater, this time at Newman, proving that the company didn't decide to dig away the hill on which it was proposed to erect the tower.

Did you read that news report about WICEN's Perth Net Controller VK6DY operating for 19 hours handling emergency traffic from a vessel which had gone rock-bound?

Perhaps by the time this reaches you JOTA may have passed — if not, have a happy week-end, hope DX is plentiful and contacts abound.

73 Ross VK6DA. ■



The Monthly Bulletin from the Tasmanian
Division WIA

NORTHERN NOTES

A successful meeting was held on the second Friday in August. Highlight of the evening was the screening of the video film "Apollo III Disaster".

Our VHF officer, Ken VK7ZKT, has been burning the midnight oil in reconstructing the Athol Johnson Memorial Contest rules. A tentative date has been set for the above contest — February 21st, 1982.

JOHN VK7NDJ, "Where is he?" Well, he GSP'd that he will be returning to the HF bands very soon. Welcome back VK7NDJ.

NORTH WEST NOTES

Jim VK7KOW will be attending the Circular Head Arts Festival at Stanley this month. His role will be chief projectionist. Number one film to be screened will be "The Stratemans" starring the late Victor Hardy, of Stanley. Memories return back to the 4095 kilocycle days. His call sign, VSP, A true pioneer and conqueror of the roaring 40s "Bass Strait".

News from St. Helens on Tasmania's remote eastern coastline is that Peter Alford VK7AO and Bob Jackson VK7NBF will be conducting an amateur radio exhibition at St. Helens Hall on Saturday, 29th and Sunday 30th August. Main theme is to expose amateur radio to the public to encourage enlistment to our expanding ranks. Thank you, Peter and Bob (Incidentally, things are a bit flashy down at Falmouth. Here they say that the corks are Bobbing up and down.)

Thanks must also be expressed to the following amateurs for their constant vigilance and dedicated enthusiasm in maintaining repeater 8, 147000 out, 148400 in-pot, located on Mt Barrow, approximately 25 miles from Launceston. Namely Peter VK7PF, Bob VK7ZRF, Brian VK7ZBY. A Job well done.

Ken VK7ZKT will be operating portable from King Island early September, VHF bands only, 6 metres and 2 metres.

73. Al VK7AN (ex VK7NAB). ■



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4-1000A	\$140 6K/6
6146B-RC/A	\$12 73B/0
6-55C	\$10 6146W

SEMICONDUCTORS

IN5408 1000V 3A	\$1.10
As used in DETRON AMPLIFIERS	
in 4007-1000V 1A	30c
RF105 100V HF power transistor	\$31
RF1452 100V HF power transistor	\$31

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TRANSMITTING TYPE AIR VARIABLE

ECC 32 208 210pF 1000V	\$18.50
ECC 45 500 500pF 2500V	\$44
ECC 32-800 800pF 2000V	\$48
ECC 78-280 280pF 3500V	\$42
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RGBAL 50 ohm co-axial	\$1.50 m
7C 2V 75 ohm low loss	\$1.50 m
470 ohm ladder line	\$22 100 ft
300 ohm ladder line	\$8 100 ft

ANTENNA ACCESSORIES:

BOLUNS	
BNB6 for beams	\$30
Kaufman for dipoles	\$25
Kaufman Centre Insulator	\$6
8&W 5 band antenna traps for dipole	\$48 set

COAXIAL SWITCHES

ES 175 6 position grounding	\$39
ES376 5 position grounding	\$42
ES 590G 5 position non grounding	\$42

AMPLIFIERS:

Linear HF3 10012 S.O.I.D STATE	\$188
Metron 1kW Solid State	\$860
AFC CO 301 2kW 2 x 3 5000 Z valves	\$1000
Spoken M250 Solid State	\$219

PARTS FOR HAM AND SWL

FILTERS:

Drake TV-3300-LP	\$36
Monitor TV HP Filter	\$22

ANTENNAS

Artek	
YA-285L 2 x 6m mobile	\$19
YS-241H 1/2 whip for 2m	\$0
YA-45 Loaded 2m whip	\$19.80
YA-48SD Collinear GP for 433 MHz	\$55
YA-48S base loaded 2m & 70cm	\$32
YS-90S M heavy duty magnetic mount	\$34
SB-75 roof-top mount	\$15
AMF 10-80mm mobile antenna system	\$89

MORSE KEYS:

Benchmar 8Y-1	\$68
H-mount:	
HK-607	\$66 HK-808
HK-707	\$19 HK710
HK-702	\$43 HK-706
HK-706	\$10 50 MK 701

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PM 3H SWR/Power meter	\$49
PM 4H SWR/Power meter	\$28
PM 5H SWR/power meter-mobile	\$45
T435 UHF VHF SWR & power meter	\$69
Kurashiki RW-151D	\$149
Kurashiki RW-155D	\$170

DUMMY LOADS (0-500 MHz)

T25	\$14 RD300	\$87
RD15	\$14 T200	\$8
T100	\$48	

ROLL YOUR OWN

SEMI-KITS:

SKT-300 antenna tuner 300W, 10-80m, coax & random wire, all parts except box & wiring	\$49
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SKT-1200 antenna tuner, 1.2 KW 10-180m
coax & random wire, all parts except box
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MIZUHO SG-9 A complete 5MHz SSB
transceiver module with attachment of m-
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MIZUHO QP-7
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MIZUHO QP-21
21 MHz TX QRP kit

MIZUHO QP-50
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CORE SIZE	MIX 2 S-30 MHz u = 10	MIX 6 10-90 MHz u = 8.5	MIX 12 60-200 MHz u = 4	SIZE OD mm	PRICE \$
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T 106	135			1 06	1 80
T 80	55	45		80	1 20
T 68	57	47	21	68	1 10
T 50	51	40	18	50	1 05
T 37	42	30	15	25	0 95
T 25	34	27	12	37	0 85

Chart shows uH per 100 turns

VHF-UHF

AN EXPANDING WORLD

Eric Jamieson, VK5LP
Forreston, S.A. 5233

VHF/UHF BEACONS

Freq.	Call Sign	Location
28.200	DLOIG1	Southern Germany †
28.2025	ZS5VHF	Natal, South Africa
28.210	3B8MS	Mauritius
28.215	GB3SX	England
28.220	5B4CY	Cyprus
28.2255	HG2BHA	Hungary ‡
28.225	VE8AA	Contwoyto Lake
28.227	ZL2MHF	New Zealand
28.230	BBC Harmonic	
28.231	ZS3HL	Namibia
28.235	VP9BA	Bermuda
28.237	LA5TEN	Oslo, Norway
28.245	A9XC	Bahrain
28.250	VE7TEN	Vancouver
28.257	DK0TE	Germany
28.260	VK5WI	Adelaide
28.262	VK2WI	Sydney
28.270	ZS6PW	Pretoria
28.276	DF0AAB	Germany
28.280	VY5AYV	Caracas
28.283	VP8ADE	British Antarctic
28.290	VS6HK	Hong Kong
28.302	ZS1STB	Cape Town
28.315	ZS6DN	Pretoria
28.887	W6RIT	Hollywood §
50.005	H44HIR	Honolulu
50.020	GB3SIX	Anglesey
50.023	H12PR	Haiti
50.025	6Y5RC	Jamaica
50.035	ZB2VHF	Gibraltar
50.038	H1C1X	Quito
50.039	FY7THF	French Guiana
50.040	WA6MHC	San Diego
50.048	VE6ARZ	Alberta
50.050	ZS3E	South Africa
50.060	PY2AA	Sao Paulo
50.070	VP9WB	Bermuda
50.075	YV2Z	Caracas
50.080	W1AW	Connecticut
50.080	TI2NA	Costa Rica
50.085	WA6JRA	Los Angeles
50.088	VE1SIX	New Brunswick
50.089	WD4CEI	North Carolina
50.100	KH8EQI	Pearl Harbour
50.104	K4EJQ	Tennessee
50.105	KCAAAD	McMurdo, Antarctica
50.106	ZS6LN	South Africa
50.110	KH0AB	Salpan
50.110	AL7C	Anchorage
50.120	4S7EA	Sri Lanka
50.144	KC8NI	Caroline Is.
50.498	5B4CY	Cyprus
51.022	ZL1UHF	Auckland
52.013	P29SIX	New Guinea
52.150	VK5KK	Arthurs
52.200	VK8VF	Darwin
52.250	ZL2VHM	Palmerston North
52.300	VK6RTW	Perth
52.320	VK6RTT	Carnarvon
52.330	VK3RGG	Geelong
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.400	VK7RNT	Launceston

52.452	VK2WI	Sydney *
52.425	VK2RAB	Gunnedah
52.435	VK3RMV	Hamilton
52.440	VK4RTL	Townsville
52.500	JA2IGY	Mie
52.510	ZL2MHF	Mt. Clifmie
52.800	VK6RTW	Albany
144.400	VK4RTT	Mt. Mowbullan
144.420	VK2WI	Sydney *
144.475	VK1RTA	Canberra
144.500	VK6RTW	Albany
144.555	VK5RSE	Mt. Gambier ‡
144.600	VK6RTT	Carnarvon
144.700	VK3RTG	Vermont
144.900	VK7RTX	Ulverstone
145.000	VK6RTV	Perth
147.400	VK2RCW	Sydney
432.440	VK4RBB	Brisbane
432.450	VK3RMB	Mt. Bunningyong

† This beacon alternates between 28.200 and 28.205 about every 5 minutes.

‡ Some doubt about exact frequency, but about as listed.

§ Not heard for a while, maybe poor propagation.

* Sydney beacon VK2WI now on 144.120; hopefully by the time you read this the 6 metre beacon will have moved to new frequency of 52.420.

‡ South East Radio Group at Mt. Gambier still in trouble finding suitable site for this beacon; hopefully operational when you read this item.

IN THE BEACONS

A comprehensive listing of these important beacons is included for the first time this month. They are particularly important at the moment for this period of equinox and the section of the band between 28.200 and 28.300 should be monitored in addition to 28.885, the VHF liaison frequency.

It is no longer safe for anyone to predict what might be heard on 6 metres or might not be heard! The way things happened during last March/April/May confounded everyone, so what does September/October/November bring? And 28 MHz may be the band to give the lead-in to activities higher in frequency, and with the wide embracing coverage of 28 MHz beacons there is a need for them to be included this month. A photo-copy of this month's beacon list placed alongside your receiver may prove very fruitful.

It is interesting to note that the VE8AA beacon is located in the north-west territories of Canada at Contwoyto Lake, being just south of the Arctic Circle, halfway between Yellowknife and Cambridge Bay, and is a remote weather station. Credit for the establishment of the beacon must go to Fred VE7HE and Ron VE7XR/VE8.

The transmitter is a converted CB set and the antenna a quarter-wave vertical drooping ground plane about 8 to 10 feet above ground. Power to the antenna is less than 10 watts and runs off a 12 volt power supply. (Thanks to Break-In for this information.)

For the main list of 28 MHz beacons I am indebted to Bill W3KO of "QST", who said the list was largely supplied by Ed WHDD and constitutes a list of those beacons known to be operating on a 24 hour basis, in other words "real beacons". Ed quips: "Whoever heard of a part-time lighthouse?" VK5LP is in agreement with this statement and is the reason the present listing of 6 and 2 metre beacons is confined to those "real beacons". There may be one or two overseas beacons not on a 24 hour basis but I am not in a position to check every one; if you know otherwise please tell me!

Incidentally, Jeff VK2BYY, when he wrote to inform me of the frequency changes of the VK2WI beacons, urged me to start placing some pressure on those custodians of beacons not presently on the assigned band-plan frequencies, and most of them are not. The recognised band-plan VHF frequencies have been listed in these columns recently, so it may be the time now to start some moves in this direction. I would certainly hope the new VK5 beacons, when they start operating again, will be on the assigned frequencies.

XE1GE FROM MEXICO

An operator well known to many VK stations is Geoff XE1GE, and I am indebted to Bill VK2HZ for sending me the following information in the form of a letter direct from Geoff, and I quote:

"I started up on 30th September, 1928, with the call X3A, in Toluca, State of Hidalgo, 50 miles north of Mexico City. Active on 7 and 14 MHz using a 210 in a TNT circuit.

"In 1933 I moved to the Port of Veracruz, and operated with the call of X1BG, in 1934 moved to Mexico City and operated on a limited basis until 1937, and later this same year obtained a new licence, XE1GL, and was active with this call up to August 1941, mainly on 28 and 7 MHz. At this same time I obtained a 58-60 MHz converted RME DM-38, and did a lot of listening on the old 5 metre band, but with no results. In August 1941 I went to Brazil for a year and, as the war had started, there was no further activity until 24th August, 1946, at which time I was issued a new licence and call XE1GE. Prior to the war this call belonged to a Dr. James B. Hard and was very active on 14 and 28 MHz.

"During Cycle 18 worked TE up to 1952, mainly LU, CX and CE. During this year I moved from Mexico City, 50 miles south to Cuernavaca, State of Morelos.

"During Cycle 19 was very active as you know; I worked the four districts of New Zealand and obtained the VHF WAD Award No. 69. I was on the air on 1st May 1959, when the VK3ALZ/XE1FU QSO was made, and heard about it from Argentina; I did hear VK3ALZ weekly and I was heard by VK2ADA on 30th March, 1959, and again on 3rd May, 1959. We could have used the liaison frequency of 28.885 MHz then to good advantage.

"Cycle 20: TE started 17th March, 1966, and carried through to 15th March, 1973. Worked the usual LU, CX, PY, ZPGAY, OA4C, HC1 and several KP4. During October 1968 I was one of the operators of the Olympic Village amateur stations which we installed in Acapulco, during the Olympic yachting events, call 4A3P. On 6 metres we worked several South Americans and heard for the first time ZK1AA's beacon on 51 MHz. Then back at the home QTH heard ZK1AA on his new frequency of 50.098 MHz. Heard this beacon many times during 1969 and finally managed to QSO on 5th April, 1969. Continued to work TE up to March 1973.

"Cycle 21: Started with TE to LU on 24th February, 1978; on 28th February heard ZL TV sound on 50.750 at 2100Z, and the first DX from the south-west was 3D2CM on 8th April, 1969, at 0155Z on 50 MHz. Up to the moment I have worked 35 countries and 48 US States on 50 MHz, many VKs also, and VK1, 2, 3, 4, 5 and 7, all on 52 MHz. I was also heard in VK6.

"Equipment consists of Heathkit HX30 10W SSB Tx, plus 80W linear with an 829B, 6 element long yagi 60 feet high, 75A2 Rx with a converter at 14 MHz. The elevation of this QTH is 5700 feet a.s.l. and 50 miles due south of Mexico, DF.

"I was born in Mexico City on 29th June, 1907, and was at school in England from 1919-1924 at Morescombe and Lancaster in the north. My dad came to Mexico in 1892 with his uncle and cousins and established the first linen mill. My mother was also from Lancashire. I have been in Mexico most of my life, except for the year I spent in Brazil.

"Between 1957 and 1959, I co-operated with the ARRL and the Air Force Cambridge Research Centre and Stanford University, making observations and recordings mainly on TE propagation during the International Geophysical Year."

Well, it's been great to learn a bit more about you, Geoff, and we will all be looking forward to another contact with you during October. You have certainly done much to put the North American continent on the map in a very consistent way, and many will have been exceedingly grateful for you having been on the air.

Incidentally, the covering letter from Bill VK2HZ indicates they are having some problems since Channel 0 started operating. Bill bought an IC 502A and has been having some fun chasing countries with 3 watts. Set out to work 10 countries with the unit and so far has achieved 7, including KL7 and KH6 on SSB, and still hopes to get the 10 before the DX disappears. Good luck, Bill, with your efforts, and thanks again for sending Geoff's letter.

22 COUNTRIES FROM SYDNEY

Further to my requests for information from operators on their 6 metre operating, a letter has arrived from David VK2BA, who indicates he has worked 22 countries on 6 metres, and heard another 7. For your interest this is David's report:—

hy-gain

NEW Extended Double Zepp Antenna Design

The Hy-Gain V2 is 2-meter extended double zepp vertical consisting of two stacked 5/8 waves properly decoupled to allow no RF on the coax feedline. Coax connects to the decoupler inside the antenna for complete weatherproofing. Mechanically the V2 has no equal. It's easy to assemble and all elements are corrosion resistant 6063-T832 aluminum with rustproof hardware. The V2 is a complete antenna that's ready to mount on any mast up to 2" (50.8 mm) in diameter.

Two sets of 1/4 wave radials and a centered feedpoint put the radiation at the horizon, not the sky! The V2 and two competitors were measured for radiation efficiency on a ground-reflection-range, which was designed according to IEEE standard 149-1979, and the results shown below.

Hy-Gain V2

Brand C ARX-2B

Brand A AEA-144

at 146.00 Mhz

at 146.00 Mhz

at 146.00 Mhz

Designed to operate from 138 MHz through 174 MHz, the V2 obtains a VSWR of less than 1.5:1 at resonance and has a 2.1 VSWR bandwidth of at least 7 MHz. The antenna's isolation from the support mast is 20 dB minimum.

The new V2 will equal or surpass the electrical performance of any competitive two stacked 5/8 wave antenna, regardless of gains claimed or your money back. Money-back limited to 90 days. If not satisfied, return to place of purchase.

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SYDNEY — 633 4344

4 Little Street, Parramatta 2150

1. Australia, all Australian States; 2. Lord Howe Island, VK2YHA; 3. Norfolk Island, VK9NI; 4. Willis Island, VK9ZG, VK9ZD; 5. Papua New Guinea, P29DJ, P29BH, P29ZFS; 6. New Zealand, all call areas; 7. Japan, all call areas; 8. Guam, KG6DX, KG6JDX, KG6JKS, AH2K; 9. Hawaii, KH6NS, KH6IAA, W6HTH/KH6, AH6AP, KH6JJI, KH6FO; 10. New Hebrides, FK6AB, FK6AX, FK6BG, FK6CR, FK6AH; 11. USA, N6CT, WA6BYA, KG6V, W6XJ; 12. Mexico, XE1GE; 13. Nauru, C21NI; 14. Tahiti, FO6DR; 15. Alaska, WA4TNV/KL7; 16. Brunei, VS5DX; 17. Korea, HL9TG; 18. Marshall Islands, KX6QC; 19. Vanuatu, YJ8PD, YJ6KM, YJ8ZV; 20. Johnston Atoll, KH3AB; 21. Cayman Island (Caribbean), ZF2DN; 22. American Samoa, AH8A.

Heard on 50 MHz but unable to work. British Virgin Islands, VP2GR; Florida, WD4NMV; Texas, WSUWD; Solomon Islands, H44PT; Puerto Rico, KP4AAN, Jamaica, 6Y5RC (beacon).

All stations worked have either been on 52 MHz two way or 52/50 MHz split frequency. Equipment consists of IC 551 driving a 400 watt linear using tube type B122, antenna 5 element yagi at 50 feet.

Thanks for the list, David, and for a very good effort. With the earlier listing from **Steve VK3OT** and now yours, maybe others will send in their effort. Perhaps 12 countries or more should be a reasonable starting point for those living in VK5 and the eastern States, and 10 from VK6. As I said last month, if enough of you show interest there seems no reason why we should not have our own DX listings as other countries do. It's entirely up to you, the readers, if you will make the effort to send your results then it may get off the ground!

PROPAGATION VARIATIONS BETWEEN 50 AND 52 MHz

David VK2BA has also included some observations under the above heading which may provoke some discussion. As general operating news is still very scarce at the moment, it seems an appropriate time to include his views, and see what the aftermath will be!

"Certainly a lot has been written and said complaining about our 52 MHz restrictions, and for sure the 2 MHz split makes things very difficult. However, over the last 12 months I have been carefully observing the differences in propagation between the two frequencies and I have come to the conclusion that things are not quite as bad as many people believe.

"How often do we hear 'Signals are getting good and strong on 50 MHz now — perhaps we could try 52 MHz', or 'We have propagation at 50 MHz but the MUF has not risen to 52 MHz'?

"Unfortunately this concept of waiting for the MUF to rise to 52 MHz has caused many QSOs to be lost. That fact is that very often the MUF has reached 52 MHz and above but the reason there is no propagation is because of different skip distances from 50 to 52 MHz.

"Generally it has been found that the band OPENS FIRST at 52 MHz and later at 50 MHz! Now this is just the reverse to the way many people expect it to be. This is because the ionosphere has greater difficulty in deflecting 52 MHz and for this reason the skip distance is longer than 50 MHz. By the time the band opens at 50 MHz to the 52 MHz propagation has moved off to the west and the chance of a QSO is usually lost.

"I have observed on many occasions that if the ZLs have propagation across the Pacific on 50 MHz, then VK can often find the band is open at 52 MHz (but not at 50 MHz for about one hour).

"What this means is that if a station is heard at 50 MHz weakly, then the 52 MHz QSO should be attempted as quickly as possible, there may be only minutes (or seconds) of 52 MHz propagation left. It also means that it is pointless in checking a particular path at 50 MHz as is so often done to see if it is open, much better to go straight up to 52 MHz.

"Taking the theory a step further (and to my knowledge this has not been done), if for example the ZLs had propagation to the USA West Coast at 50 MHz, by changing to 52 MHz or even above, they should be able on many occasions to work further, e.g. Central USA.

"I have discussed the ideas with Roger Harrison and he is in general agreement."

It's over to you, the readers, for any comment and flak! At this stage I haven't the time to comment at any length, other than to say I also agree with most of the ideas, particularly as applied to the early morning contacts made following the sun from east to west, e.g. from, say, 2100Z to 2400Z. It certainly hasn't always applied in contacts with H44PT, VS5DX and VS6BE, but then the latter two are in entirely different directions. But the theory may be one to exploit during October/November w/h possible contacts to Africa where it has been well nigh impossible to get signals through on 52 MHz, maybe we are doing it the wrong way and should be trying to get the South African boys up to 52 MHz a lot earlier than we have done in the past. Yes, food for thought. Feedback needed from the multitudes please!

GENERAL NEWS

With thanks to **Steve VK5AIM** for a look at "The Short Wave Magazine" and a snippet from the VHF pages provides the following which may be of some interest.

"First, a real puzzle for the propagation experts. When Charlie Newton G2FKZ found he had an hour to spare in Athens, Greece, airport in mid-February, he telephoned Costas Fimerellis SV1DH for a chat. He heard that on 16th February, Costas was receiving strong signals via TEP mode from ZE2JV on both 6 metres and 2 metres. He had been listening for beacon ZS1STB, located at the extreme southern tip of the continent for over a year without success. As conditions on February 16th were the best ever heard on

VHF, Costas felt convinced he should be able to copy this beacon, however it was not to be heard. Then he turned his 6m beam north and there it was — clearly identifiable!

"Now SV1DH is one of the most reliable and experienced students of VHF propagation anywhere, and this was a first-hand report to G2FKZ, so there can be no doubt as to the authenticity of the item. Precisely what mode of propagation was responsible for reception over a 32,000 km long path via both polar regions, will exercise the brains of the experts for a long time to come. Next month it is hoped to publish a fuller account of this amazing occurrence.

"On the same day, this time on 2 metres, ZD8TC (Ascension Island) worked KP4EOR (Costa Rica) via TEP, a QRB of around 6300 km. SV1DH suggests this is the first reported incident of simultaneous north/south and east/west TEP."

About the only comment I would be prepared to make in the absence of more information is that the reception of the ZS1STB beacon sounds very much like back-scatter to me. Maybe such phenomena as that doesn't normally occur in Europe. No further comment appeared in the following month's issue of the magazine, so further news couldn't have come to hand.

Also noted in "Short Wave Magazine" was the comment that "It seemed the peak of Sunspot Cycle 21 occurred in December 1979, the smoothed sunspot number being 165.3. The forecast for the next minimum is currently January 1987. In the past the maximum has been characterized by a rise in geomagnetic activity. This is now definitely under way. Sudden ionospheric disturbances — SIDs — were occurring daily on the HF bands during May, so we can expect more auroras than we had last year, some of which could be quite intense."

UHF REPEATER

I note from "The Propagator" that the Illawarra Amateur Radio Society's UHF Repeater VK2RUW is now operational from a site to the south and east of central Wollongong. Channel number 8255 (old channel 9), and the frequencies are 433.225 MHz in and 438.225 MHz out. They report coverage around the city appears very good, especially in the northern suburbs, which are shadowed from the VHF repeater channel 6850. Special thanks to **Graeme VK2CAG** for his work on the repeater.

CLOSURE

As you have been able to observe there has been little outstanding activity on 6 and 2 metres during the past month, except for the "RD" Contest, and some very good scores were noted, particularly on FM. There have been the occasional 6 metre openings to VK2 and VK2 which is normal for the time of the year. But hopefully some long distance DX will be available by the time you read this. Closing with the thought for the month: "In the good old days the man who saved money was a miser; nowadays he's a wonder!"

73. The Voice in the Hills. ■

THE GEELONG REPEATER VK3RGL

Unfortunately not all amateurs in the Geelong area are fully aware of the problems which have been presented to the repeater.

Earlier this year we had an intermittent timer, and the repeater would occasionally "lock" on. The transmitter and receiver were returned to Geelong and the necessary service was carried out on the timer. When the system was returned to Mt. Anakie, some 10 days later, it was discovered that the receiver input filter and receiver coax cable had been stolen. The police were notified but, unfortunately, so far the items have not been located.

A new crystal receiver input filter is now on order from Japan. The cost of the filter is covered by an insurance policy arranged by the WIA. Delivery time is expected to be late August. A working bee was to be arranged early this month to install the new housing, land line, and accessories but prior to this working bee, on investigation of the site revealed that a new theft had occurred.

The 20 ft. 6 dB antenna specially purchased for the repeater had been unbolted from its mounting and subsequently disappeared. It does appear that at the same time as this theft, the Telecom microwave station and the CFA buildings at Mt. Anakie were broken into and substantial damage sustained. Fortunately, this antenna is also covered by the WIA insurance and a replacement is being organised.

A new sub-committee consisting of Daryl VK3AGR, Chas VK3BRZ, Peter VK3AWY and Jim VK3DPL has been appointed by the GARC committee to administrate the installation and maintenance of the Geelong repeater and 6m beacon. The repeater will be installed at Mt. Anakie on a single receiver/transmitter site to improve security. The existing transmitter will be retained pending completion of the new solid state replacement. Output power will still be approximately 100W into a 6 dB gain antenna. Steady progress is being made on the 50W solid state transmitter by the volunteer club members. It is proposed to use a microprocessor control for such various automatic functions as time-out and security.

Emergency power will be provided by batteries which will operate in a constant standby mode.

The GARC committee wishes to thank all the amateurs and supporters of the Geelong Repeater for their donations and moral help. The funds received will, with the help of more funding, be directed to improving the security and operation of the first fully licensed amateur repeater in Australia.

Before the repeater is returned to Mt. Anakie it will be operating on an intermittent basis from Geelong for general testing. Some desensitization and adjacent interference may be observed, however this will be eliminated when the new filter arrives.

Use it so final checks can be carried out—From GARC Newsletter. ■

INTRUDER WATCH

The letter reproduced here was dated 7th August and was addressed to Mr. Alf Chandler VK3LC, the IARU R3 Intruder Watch Co-ordinator, by the Head of the North Asia Branch of the Department of Foreign Affairs. In a subsequent letter addressed to the WIA and which authorised publication it was requested that emphasis be given to the fact that the Department of Foreign Affairs pursued this matter on the basis of advice received from the Department of Communications. The second letter went on to say that the DOC is the Department responsible for management of the radio frequency spectrum, and in most cases, would take up problems relating to international radio interference directly with its counterpart body in the country concerned but in this particular instance the Department of Foreign Affairs made representations to the Chinese authorities on behalf of the DOC.

Alf Chandler's original letter of 27.3.1981 was addressed to the Australian Embassy in Peking (and copied to the Department of Foreign Affairs) explaining his role as IARU R3 IW Co-ordinator and drawing attention to broadcasts from Radio Peking in the Radio Amateur exclusive frequencies as well as being subjected to jamming which creates even greater interference. He also pointed out that the 7010 kHz signal produces very strong harmonics on 14020 kHz which ought to be suppressed.

I refer to your letter of 27th March, 1981, in which you enclosed representations to the Australian Embassy in Peking regarding interference in amateur shortwave radio bands due to broadcasts emanating from Radio Peking.

The Department of Communications has confirmed that broadcasting stations identifying as Radio Peking are indeed heard in band allocated to the amateur service, as you have pointed out. Therefore it would seem on the face of it that the Department of Foreign Affairs would be entitled to make a direct approach to the Chinese Government on this matter under the Article on "Procedure in case of Harmful Interference" of the International Radio Regulations, to which China is a party.

I should explain that representations on the use of reserved frequencies by Radio Peking were made to the Chinese authorities by our Embassy in Peking during 1978. As interference from Radio Peking continues to be a problem, we are asking the Embassy to take up the matter once again with the Chinese.

However, by way of background, I should also explain that the People's Republic of China is a relatively new member of the International Telecommunications Union. At recent international telecommunications gatherings, China has indicated that the international regulations relating to registrations of frequency assignments, which have been in force for many years and tend to favour the status quo, are not in China's best interests, and in fact have prevented China from obtaining the registrations which it sees as being of national importance.

His view tends to be supported by the new International Radio Regulations, which were drawn up at the World Administrative Radio Conference (WARC) 1979, take effect on 1st January, 1982, and which result in preference being given to developing nations in certain cases.

At the signing of the Final Acts of the WARC 1979 the Chinese delegation had a statement incorporated into the Final Protocol relating to the use of frequencies for broadcasting. This statement along with 82 others, was "taken note of" by Australia and all other Administrations signing the Final Acts.

The Statement, No. 20, is as follows:—

For the People's Republic of China:

At the time of signing the Final Acts of the World Administrative Radio Conference, Geneva, 1979, the delegation of the People's Republic of China, on behalf of the Chinese Government, states the following:—

The Chinese delegation takes note of the decision taken by the present Conference on the convening of a World Administrative Radio Conference for the planning of the HF bands allocated to the broadcasting service and believes that it is an effective measure to solve the problem of congestion in the HF broadcasting bands and out-of-band transmissions. However, owing to historical reasons, the Chinese Administration reserves the right to continue to use those frequencies which it uses for broadcasting at present in the band 5060-27500 kHz until the establishment and implementation of the proposed HF broadcasting plan.

It is recognised that the presence of broadcasting stations in amateur bands restricts the ability of amateurs as a whole to pursue their hobby and is a cause for frustration. However, I am sure that you will appreciate from the overall situation above, and in particular the Final Protocol of WARC 1979, that the Chinese do not necessarily share the same views on reserved frequencies as Australia at the present time.

If our approach to the Chinese results in further information which will be of use to you we shall write and inform you. ■

AROUND THE TRADE

ROTARY COOLING FAN

An ideal fan for cooling electrical equipment is the Sunon Rotary Fan from Dick Smith Electronics.

This rotary fan is designed for power supply and transmitter systems but its uses are as limited as your imagination.

The cooling fan Cat No Y8500, is 11 cm in diameter and is fixed with four mounting positions. As an added advantage the Y8500 can be mounted either internally or externally.

The seven plastic fan blades are enclosed in metal for rigidity and the fan can be built with new equipment or added on to existing equipment.

The Sunon Rotary Cooling Fan operates on 240V AC and is now available at \$16.90 from a Dick Smith Electronics store. ■

PULSE SWITCHING POWER SUPPLY

Vicom International announces the release of a laboratory type DC power supply incorporating pulse switching to eliminate bulky and weighty power transformers. This power supply produced by Daiwa Corporation of Japan has variable voltage output between 9-15 volts and a maximum current rating of 30 amps.

Utilizing the Crossed-Needle Indicating Meter System, famous in the Daiwa VSWR power meters and bridges, voltage output and current is automatically read and additionally, wattage is read on the calibrated scale at the point where the needles intersect.

The efficiency of the supply is claimed 75 per cent with voltage regulations better than 0.5 per cent at the maximum current of 30 amps.

Ripple is below 10 millivolts and a protection circuit is incorporated in the output with a current limiting. Using the pulse switching circuitry at a frequency of 20 kHz, the weight advantage of 9.6 kgs over conventional power supplies is most marked. The size of the unit is approximately 24 x 19 x 34 centimetres and the special filters employed eliminate pulse noise on the output voltage.

Further details, pricing and availability from Vicom International, Melbourne. Phone 62 6931 or the Vicom Sydney office on 436 2766. ■



QSP

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"Coherent CW is a useful technique which improves communications effectiveness in excess of 20 dB. This factor can be used to offset poor propagation conditions, small or poorly located antennas, or low-power operation. It has the potential to be as revolutionary to CW as SSB has been to phone communications." —QST June 1981, from an article on CCW. ■

SMILE — YOU'RE ON CAMERA

"As everywhere, a smile will get you miles in Tonga, and a sunny 'another day, another banana republic' attitude is a 'recipe for a dip in carefully orchestrated bureaucratic treacle.'" —From an article in *Break-In* June 1981. ■

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New Zealand ART Conference — 1981



Arthur Godfrey ZL1HV welcoming members and official guests to the NZART Conference which was opened by His Excellency, Sir David Beattie, Governor-General of New Zealand (fifth from left).



Gleborne Branch provided the pall-bearers for the burial of the 700 kHz split for 2 metre repeaters.

David Wardlaw VK3ADW and Michael Owen VK3KI represented the WIA in Auckland at the NZART Conference held earlier this year. Next year the NZART will send an official delegation to the WIA Federal Convention.

The exchange of ideas that took place will certainly cement the relationship between the two Societies.

The NZART has just computerised its membership records and is running into similar problems experienced by the WIA when we did the same thing.

At the present the NZART will not be seeking third party traffic rights for New Zealand amateurs.

The NZART will be sponsoring a Region 3 award, the details of which will be announced later. Intruder watch received strong support. ■



President of NZART, Arthur Godfrey ZL1HV making a presentation to the WIA representatives David Wardlaw VK3ADW and Michael Owen VK3KI.

IT'S REALLY A SHAME

From Nuts and Bolts (San Francisco Radio Club).

It was apparent immediately to the antenna crew that the installer did not know much about putting up a beam. Among the mistakes were found—

- the lock washers were all under the screw heads instead of under the nuts. The wind was shaking them all loose and one trap had already fallen off the antenna and was lying on the roof 20 feet below
 - two of the three elements were pointing up in the air about 30 degrees instead of being horizontal.
 - one element was 3 inches longer on one side of the cross boom than it was on the other
 - two of the three traps were installed upside down, so the seep holes would catch the rain. The traps were full of water
 - the feedline was not weatherproofed.
 - the egg insulators were installed backwards, making the guy wires extremely vulnerable to snapping in a strong wind
- From ARNS Bulletin April 1981. ■

WICEN

R. G. HENDERSON VK1RH
Federal WICEN Co-Ordinator

Continuing with the WICEN handbook draft, which was outlined in a recent column, this issue brings you those sections from Part 1 dealing with regulations, affiliations, accreditations, powers of command, call-out procedures and insurance.

REGULATIONS

The relevant regulations are contained in paragraphs 6.28 to 6.33 and 7.17 to 7.34 of the Amateur Operator's Handbook Revised (December 1978)

EMERGENCY AMATEUR NETWORKS

These are defined, together with the conditions relating to their operation, in paragraphs 6.28 to 6.33. State WICEN co-ordinators should establish a means of advising their Superintendents, Regulatory and Licensing of WICEN exercises and emergency activations.

DISTRESS CALLS AND MESSAGES

The format of distress calls and messages, together with a receiving station's obligations upon hearing such calls, are given in paragraphs 7.17 to 7.34.

NOTIFICATION OF DISTRESS SITUATIONS

Paragraph 7.29 advises who to notify in the event of receiving a distress message. For land-based distress situations the local police should be advised. Particular note is made of the sea-based situations, which should be advised to the Australian Coastal Surveillance Centre, Canberra, ACT, telephone (062) 47 5244. Reverse charges calls are preferable to keep the link open to the amateur involved.

THIRD PARTY TRAFFIC

The reference in paragraph 6.6 is out of date and was not applicable anyway for approved emergency amateur networks — reference paragraph 6.29. As a guideline WICEN exercises in support of civilian agencies should comply with the current general constraints on third party traffic, viz., no commercial content and no material reward to the amateurs involved.

DEPARTMENT OF COMMUNICATIONS LIAISON

Good liaison between WICEN and DOC is essential and can be achieved at State Superintendent R and L and District Radio Inspector level by regular calls by WICEN co-ordinators. It may also be expedient to include the State WICEN co-ordinator on the WIA team for State Joint DOC/WIA meetings.

AFFILIATIONS, ACCREDITATIONS, POWERS OF COMMAND AFFILIATIONS

The appropriate affiliations for WICEN to make vary from State to State, however they may include the following:—

State Emergency Services/Civil Defence, Country/Bush Fire Authorities.

Volunteer Rescue Agencies (such as VRA in NSW)

Volunteer Coastguard Agencies.

Australian Red Cross Society.

St. John's Ambulance Brigade.

In each case the affiliation should be with the principal body rather than at a lower level and the limitation of services available to "trained licensed communicators with equipment" observed.

ACCREDITATIONS

Accreditations should be initiated with the State disaster control agencies and then such of the agencies on the affiliation list as are deemed necessary for WICEN to carry out its role. Accreditation is usually confirmed by issue of an identity or authority card.

For example, whilst it is highly desirable to be accredited by the State police as an emergency communications service, it is useful to be affiliated with SES if that action achieves compensation coverage for members activated on a task.

POWERS OF COMMAND

The basic chain of command is from the disaster control agency's authorised representative to WICEN co-ordinator, or deputy, or assistant co-ordinator, however members should accept reasonable instructions from an authorised officer and protest the matter after the emergency if it is felt necessary to do so. WICEN members should only be employed upon communications duties.

CALL-OUT PROCEDURE

Call-out procedures for activation of emergency networks must be devised by State WICEN co-ordinators. Those procedures should encompass the following:

AUTHORITY FOR CALL-OUT OR ACTIVATION

This would normally come from a local, regional or State WICEN co-ordinator.

REQUESTING AGENCIES

A listing of agencies which might request and receive assistance with emergency communications.

ACTIVATION INFORMATION

This should include the disaster control agency which requested the activation and details of what actually occurred, including the duration, size and location of the activation. Observe the DOC regulations and requirements.

LEVEL OF ACTIVATION

Upon consultation with the requesting agency the network might be placed on **standby** or **full alert**. These activity states will need to be specified fully in the procedure.

INSURANCE AND COMPENSATION

WICEN members should be clear on their insurance and compensation coverages for both training exercises and emergency activations. This should also extend to equipment and private vehicles if they are involved, and thought could be given to third party considerations.

A group coverage scheme is desirable and the requirement may be met through membership of volunteer rescue agencies or SES.

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National EMC Advisory Service

Tony Tregale VK3QQ
Federal EMC Co-ordinator

"THOSE LONG-WIRE ANTENNAE"

Interference to amateur reception is on the increase. Perhaps the most common source of annoyance is power line interference.

There have been many articles, reports and words of wisdom produced in connection with PLI. However, when we can remove the politics and get right down to the nuts and bolts, power lines are intended to transport electrical 50 Hz energy, not radiate electromagnetic energy. It is interesting to note the FCC rules and regulations on this subject, and I quote section 15.4 General Definitions:—

(a) RADIO FREQUENCY ENERGY

Electromagnetic energy at any frequency in the radio spectrum between 10 kHz and 3,000,000 MHz.

(b) HARMFUL INTERFERENCE

Any emission, radiation or induction which endangers the functioning of a radio navigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radio communication service.

(c) INCIDENTAL RADIATION DEVICE

A device that radiates radio frequency energy during the course of its operation, although the device is not intentionally designed to generate radio frequency energy.

Perhaps we should also consider Australian Standard 2344; this quotes some of the physical aspects of the interference phenomenon.—

C1. SPARKING DUE TO BAD CONTACTS

Unbonded conductive parts subject to the electric field of high voltage power lines and associated equipment are consequently electrically charged and the potential difference between adjacent conductive parts will increase even if both parts are floating. This occurs irrespective of whether they are bonded to components at either line or earth potential.

If the distance between conductive parts is small, the increasing field strength in the space between may reach the critical level and lead to a complete breakdown of the gap. Avalanche ionizing initiates the development of an arc, the gap discharge occurs, the potential difference banishes and the arc extinguishes. The whole sequence of events can be repeated when the parts become recharged, as the space is once again electrically stressed and the next gap discharge takes place.

C5. INTERFERENCE PROPAGATION

Conduction along the line, with the associated electric and magnetic fields, and radiation, are the mechanisms by which the disturbing radio frequencies reach the receiving radio antenna. It has been observed in practice that LF and MF frequencies of interest to radio reception,

propagate some tens of kilometres along the line, at VHF frequencies of interest to television and FM radio, propagation along the line is less important than radiation from the source. Line geometry, resistance of the corresponding ground, and the value of the frequency are of major importance to propagation. The higher the frequency, the greater the attenuation along the line and the shorter the distance of propagation.

C6. INTERFERENCE LEVEL

Significant radio interference levels are normally confined to the immediate vicinity of the line and extend a few hundred metres into the surrounding space. If resonant oscillation occurs in a fitting or component, a narrow band of radiated frequencies may be measured at distances up to a few kilometres. The combination of the direct wave and the wave reflected by the ground may result in fluctuations in the field strength measured.

C7. EXAMPLES OF GAP SOURCES

C7.1. Insulation:

Gap sources on overhead lines may be associated with lightly weighted pin and cap insulators, where the weight of the insulator is insufficient to protect the surface from oxidation, or with corroded hardware parts and faulty joints. For porcelain string insulator units it has been found that sparks can be produced by discharge in small voids in the porcelain. Broken insulators, paint layers and even objects not forming part of transmission lines, such as nearby unbonded fences or gutters, may give rise to gap discharges.

The contact between a pin-type insulator and phase conductor can be a source of sparking where the conductor rests in the top groove, at the tie-wire, or at the stirrups in the side groove. The problem is poor contact between metallic and insulator parts, and corrosion creating tiny gaps that may spark over.

C7.2. Pole Hardware:

Where wood poles are used for power lines, sparking may occur between items

of pole hardware, and these can be a source of severe interference to television reception. This usually occurs due to the shrinking and swelling of the wood as air humidity changes. As the wood shrinks, nuts and bolts used to hold the cross-arms in place, or to fasten insulator pins to the pole or crossarm, can become slightly loose. If any corrosion occurs between the nut and bolt, or the washer (if one is used), an imperfect contact results and sparking takes place.

Another source of television interference from wood-pole lines can arise from the staples used to fasten the earth wire to the pole. As the sections of the pole are at different potentials, the staples which are fastened to the pole may spark over to the earth wire, particularly if there is any corrosion between the two.

C8. WORKMANSHIP

Care must be taken both during the erection of the line to ensure good workmanship throughout, and in the subsequent maintenance to ensure that any defects caused, e.g. through vandalism, are found and the necessary remedial action taken. Special attention should be given to the design and maintenance of equipment to ensure the durability and adequacy of contacts, e.g. air-break isolating switches, the flexible connections provided in the design of such switches, fuse-mounts, and line taps.

C9. INFLUENCE OF WEATHER

Gap discharges are strongly influenced by the weather. It is only in dry weather that the small gap between two conductive parts will act as an insulator or dielectric and possibly cause breakdown. In foul weather or rain a conductive path may be established between these two parts, which consequently remain at the same potential. Interference caused by gap discharges is a phenomenon that is normally associated with fair weather and is usually absent under wet weather conditions. As a result this type of interference is often referred to as dry noise.

Power line interference can be more difficult and time-consuming to locate than most other sources, is more costly to correct and is more broadband; thereby affecting more services. A power line source generally causes interference to a greater number of people than a non-power line source, because of the power line's ability to act as a long-wire transmitting antenna. ■



PHOTOGRAPHS FOR AR

Don't keep them to yourself
SEND THEM IN—NOW

ALARA

AUSTRALIAN LADIES' AMATEUR RADIO
ASSOCIATION

Greetings to everyone again and hope those who participated in the RD contest had lots of fun and high scores. Gill VK6YL had a very impressive score from all reports.

Bev VK6NYL is at present touring Central Australia: do hope you have an enjoyable holiday, Bev and family.

Mavis VK3KS is another who deserted our cold and wet weather for sunnier parts, spending three weeks in VK4 land with daughter Lynette and family.

Now Mavis is busy again sending out ALARA awards. A slight change of rules will appear in the awards section of AR soon.

Thank you to ALARA members who have volunteered for executive positions to help keep ALARA running smoothly. Valda VK3DVT has agreed to be Treasurer, and Joyce VK2DIX Vice-President. A very special thank you to Mavis VK3BIR, who has contributed a tremendous amount to ALARA since it started in 1975. Mavis, we hope, will be helping in an advisory capacity in the future.

Daphne VK2KDX is looking for YLs to chat to on Wednesdays on 28.470 at 0400Z. Marlene VK5QO and Valda VK3DVT have twice weekly seds on 7.125 Tuesdays at 0500Z and Thursdays at 000Z, and would welcome any YLs joining in.

Marilyn VK3DMS gave a very successful talk to about 30 men at Midlura recently. Well done; a repeat in the future by the sound of things.

The 14220 MHz net on Mondays at 0630Z is open to OM's the first Monday of the month, otherwise YLs only.

New YLs are reminded that open house Tuesdays and Thursdays, 14.33Z, check in time 0930Z. Gill VK6YL and Heather VK2HD are net controllers.

Remember also YL activity day, the sixth day of each month, on 28.588, 28.668, 21.188, 21.388, 14.288 on the hour. Call CQ YL and join in the fun.

ALARA contest date is November 14th. Please mark it on your calendar. We are hoping for a lot of logs for our first contest; remember its success depends on YOU. My thanks to all who are sending copies to DX stations they correspond with.

Do hope to talk to you all on the contest and other frequencies. Any queries on the contest please call after ALARA sked on Monday night, after 1130Z when the net is closed. This is also your opportunity for contacts for the ALARA award. Contacts during the net are not valid for the award.

If you would like to join ALARA send a note to Jessie VK3VAN, PO Box 38, Frankston, or join the net on Monday or Thursday nights, 1000Z on 3570 \pm QRM; Monday at 1030Z.

33/73 to all until next month.

Margaret Loft VK3DML.



VK6 Ladies' Luncheon

The 2nd birthday of the group: Standing, Joan Rumble (VK6RU), Rhonda Roga (VK6NRU), Gill Weaver VK6YL, Christine Carter (VK6FC), June Greenaway (VK6DA), Poppy Bradshaw VK6YF (VK6EB). Seated, Joyce Taylor (VK6JK), Debbie Solomon (VK6MS), Joan Morris (VK6TX), Peg Reimann (VK6DY), Daphne Hugo (VK6KW silent key), Olive Couch (VK6WT). (OM's call sign in brackets.)

A group of YLs, XYLs and friends of amateurs meet on the last Thursday of each month for lunch in Perth or surrounding suburbs. Different venues are chosen to add variety to the occasion. The formation of the group was led by Daphne Hugo, XYL of VK6KW silent key, and the 2nd birthday was held on June

25th, 1981. The attendance, which averages 12, includes Gill VK6YL, Inga VK6OV, Poppy VK6YF and three other ladies who will be sitting for AOCPC examinations in the near future. Visitors from interstate, country areas or overseas are cordially invited to attend these luncheons.

INTERNATIONAL NEWS

SOLOMON ISLANDS

Here is the text of a publicity release by the IARU R3 Association:—

"The Solomon Islands Radio Society has announced that the following changes in amateur bands have been approved by the Controller of Posts and Telecommunications, Honiara.

"From 1st January, 1982, amateurs in the Solomon Islands may use the band 10.10 to 10.15 MHz on a non-interference basis.

"In addition, the bands 18.068 to 18.168 MHz and 24.89 to 24.99 MHz will be made available to Solomon Islands amateurs on an exclusive basis once ITU transfer procedures are completed. However, the Controller promised to investigate the release of the two higher bands earlier but on a non-interference basis.

"SIRS application for H4 amateurs to use the band 7.1 to 7.3 MHz was ultimately successful and now amateurs in two countries in Region 3 may use the top 200 kHz of 40 — Solomon Islands and New Zealand. Australian amateurs are permitted to operate 7.0 to 7.15 MHz and the WIA is currently negotiating with the Australian Administration to increase the upper limit to 7.3 MHz.

"SIRS has also received an undertaking from the Controller, P and T, Honiara, that "mode band plans" (i.e. CW/SSB band splits) will not be enforced by government legislation.

"The Solomon Islands Radio Society is a relatively new member of IARU Region 3 Association. The members are very active and have a Society club station, H44S1."

SPOTLIGHT ON SWLing

Robin Harwood VK7RH

5 Helen St Launceston, Tasmania 7250



At the 1981 Convention of the Association of North American Radio Clubs (ANARC), which was held at Thunder Bay, Ontario, those attending passed a resolution calling for the cessation of "jamming" on the various shortwave bands. It stated that all SWLs should be able to listen to any broadcast station world-wide, at any time of their choosing, and called on their respective administrations to bring this practice up for discussion at the upcoming WARC regional meetings.

Despite numerous protests, it is clear, however, that this jamming will continue as many nations heavily censor and restrict news and information within their borders and wish to prevent news of developments from getting out and being aired back into the country from international shortwave broadcasting stations. Many of the citizens of the nations concerned do find that the shortwave stations carry a far more extensive news coverage of local events than their own electronic media.

With this in mind, many developing and emerging nations, being sensitive to the coverage of events, particularly by the Western press agencies, would like to break the monopoly of the four main news-agencies to correct what they claim are biased and slanted reports of what is occurring within their nation by legally restricting and controlling what the international reporters and journalists submit to their agencies and networks.

There are four powerful Western news-agencies dominating the world's media at present. They are the Associated Press (AP) and United Press International (UPI) in the United States, Reuters in Great Britain, the first and possibly largest of all the press agencies, and Agence Presse France (APF) in Paris. All are selling news and information on a commercial basis. Australia's only newsagency, AAP in Sydney, is jointly owned by all the major media groups and is also linked up with Reuters in London.

Another major newsagency of note is TASS, the Soviet agency that is owned and controlled by the Government, mainly

disseminating news and information reflecting official viewpoint. It has a virtual monopoly on all news emanating from the Soviet Union, and those international journalists based in Moscow who report and publish news/information contrary to the official line are subjected to pressure and harassment and expulsion from the country.

Many other nations also employ this trend of silencing and muzzling international journalists who submit reports back to their home base of developments within the host nation. Especially in the case when the news, being heavily censored in the local media, comes back via shortwave radio newscasts. For example, Indonesia expelled several Australian journalists who dispatched reports on the Indonesian scene, which the local media did not cover. Apparently many Indonesians were tuning in to Radio Australia's Indonesian language newscasts to find what was happening in their own land.

At the twenty-first Conference of the United Nations Scientific and Cultural Organisation (UNESCO) in Belgrade a resolution was passed calling for a "New Information Order". This resolution would effectively block journalists from reporting other than the official view of events within the host nations. This, of course, is unacceptable to the majority of Western press agencies and the media generally used to working in the context of a free press. Because of this rejection, Third World and non-aligned nations are going ahead with the formation of their own collective newsagency, and in some instances will bar outside press services from entering their borders.

Well, what has this to do with shortwave? To correct the imbalance of news reports, many governments and administrations are utilising international broadcasting outlets to get their version out to a wider audience than is available through press services. I have already noticed a resurgence of activity over the past couple of months around the various frequency bands.

In the July column I made mention of the International Volmet Network. Darrin Pearce LZ3359, of South Blackburn, Victoria, has forwarded me further information about the broadcasts. They transmit information known as SIGMETS, in addition to the various terminal forecasts. SIGMETS concern the occurrence, expected or otherwise, of various meteorological conditions in the upper atmosphere, with particular relevance to subsonic to supersonic flight levels.

Darrin also sent me details of the various international and regional distress frequencies in the Australian Search and rescue (SAR) area. I have included the HF channels only, due to space limitations.

AUSTRALIAN SAR/DISTRESS HF CHANNELS

1. 500 kHz International Distress Frequency for ships aircraft and survival vessels. This also is to be continuously monitored by all operators of ship and coastal stations
2. 2182 kHz AM — International Distress Channel for ships, aircraft, etc., as well as Emergency Position Indicator (EPI) beacons
3. 3023.5 kHz AM — International On-scene SAR Frequency
4. 4125 kHz USB Small Craft Distress Frequency
5. 4340 kHz CW — SUBMISS/SUBSUNK/SMASHES Channel — Indicator buoys so as aircraft can monitor and DF, if possible
6. 5680 kHz AM — International On-scene SAR Channel, including above
7. 6215.5 kHz — Small Craft Distress Channel
8. 6364 kHz AM — International Distress Frequency for survival craft
- 5(b) 5695 kHz — Designated as Military Distress Channel

Thanks for the information, Darrin, and look forward to hearing from you with some further information in the future.

On the 17th and 18th of this month the Annual Jamboree of the A will be held. This is the occasion when Scouts worldwide link up with one another via amateur radio. Many stations will be set up from Scout halls and camping sites.



Over the past couple of years I have been associated with one of the regular participants in JOTA, the 18th Launceston Sea Scout Group. This year we will again be operational from their headquarters with VK7RH/P. The boys are keenly looking forward to working many stations during JOTA 1981.

Well, that's a for this month. Until next time, the best of 73s and good DXing! ■

QSP

REPRINT

We've said it before and we say it again: "You never know where your AP published article will show up next!" Latest we have seen is R A Howison's (VK2VPH) article "Della Yagi The Answer" (AR November 1980) re-published in Radio ZS for March 1981 (South Africa Radio League) ■

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AMSAT AUSTRALIA



R C Arnold VK3ZBB

There has been no positive record of signals from AMSAT Oscar 7 although several suggestions have been made that the beacon on 435.1 MHz has operated. It now appears unlikely that we shall again see AO7 as a fully operational satellite and I am therefore dropping its predictions.

OSCAR 8 is functioning satisfactorily according to its operational plan with Wednesdays being allocated as a battery recharge day. There have been some fairly frequent shifts in orbit parameters and therefore the following forward predictions must be viewed as approximate only—

OSCAR 8 October:

Date	Orbit No.	Eqz. Z	Eqz. W
3	18239	0007	66
10	18337	0040	74
17	18435	0112	82
24	18532	0001	65
31	18630	0033	73

With thanks to "Satellite News" here are some satellite total figures as at 31st December, 1980:—

Objects orbited	12365
Objects re-entered	7915
Object on the moon	181
Objects on Venus	46
Objects on Mars	27
Total satellites in orbit	4450

Now a few tongue-twisters describing the types of orbit—

In geocentric orbit	4421
In heliocentric orbit	46
In barycentric orbit	81
In selenocentric orbit	21
In aerocentric orbit	10
In galactocentric orbit	2
In cythercentric orbit	3

The AMSAT Pacific Net with control station JA1ANG (Harry) or 9M2CR (Colin) has a new frequency of 14,305 MHz. The time is 1100 GMT on Sundays. Check-ins are always welcome.

At the time of writing the launch of UOSAT is still scheduled for around September 15th. The following notes on this satellite and its scientific possibilities are reprinted, courtesy of AMSAT Satellite Report.

THE FIRST SCIENCE OSCAR

Imagine for a moment that you could look at the ionosphere in such a way that you could readily know its condition in your vicinity. Further, imagine a small group of stations just like yours networked for the purpose of producing sophisticated ionospheric maps which would allow insight to fortuitous propagation paths. Now stop imagining and come to understand that these capabilities may be close at hand with the impending launch of amateur radio's first purely scientific satellite: UOSAT.

In a little more than a month the UOSAT amateur scientific satellite will be launched from Vandenberg AFB, California, aboard a Delta rocket. The Delta will also carry another scientific package called Solar Mesospheric Explorer. UOSAT will, in the words of its programme director, G3VJO, begin to redress the imbalance between the operational and technical interests manifested in recent years.

Of what is UOSAT capable? How can you participate and use the future AMSAT-OSCAR 9? Beginning with this issue of ASR we will look at some of the interesting features of UOSAT. Because of space limitations, our view will be necessarily brief. Details and technical solutions must await in-depth articles pursuant to that of Martin Sweeting's fine introduction in ORBIT No. 6.

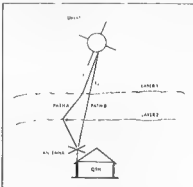
In this ASR Tech Brief we will look at the phase coherent beacon experiment of UOSAT. When we're through, you should know what it is, how it works and what its significance is. A future ORBIT will explain how you can build and use compatible equipment to directly participate.

As is generally well known among radio amateurs the region of the atmosphere from about 50 to 250 miles in altitude is of great interest since it is within this region that reflection of HF radio waves generally occurs. Prior to radio satellites, the only way in which signals could be sent well beyond the optical horizon was by virtue of ionospheric reflection and EME, i.e. using the moon as a passive reflector. It is therefore of paramount interest to HF amateur communicators to have current status reports about the condition of the ionosphere. Several methods are available for this purpose. However, the character of the methods and the accuracy resulting varies considerably. At one end of the scale are published long-range forecasts based on predicted solar activity with an assumed linkage to ionospheric condition. At mid-scale are daily forecasts by government agencies and research institutes which produce reports such as the Solar-Terrestrial indices transmitted by the National Bureau of Standards station, WWV, on 2.5, 5, 10, 15 and 20 MHz at 18 minutes past each hour. At the other end of the scale are real-time measurements that you yourself make by probing the HF bands passively (by listening to and noting the areas from which signals are originating) and actively

(by calling CQ to see who/where responses come from).

With UOSAT, a new and powerful active probe will be added to the amateur arsenal. Here's how it works.

There are four HF transmitters (among others) aboard UOSAT. The outputs of the transmitters are on 40, 20, 15 and 10 metres and radiate a power of a couple hundred milliwatts each. Nevertheless, given a reasonably competent station anyone who tries will likely hear these beacons. What is special about the beacons, besides the QRP levels of these HF beacons, is the relation of the phase of the output signal of each: it remains constant or phase-locked. This is crucial to the experimenter as shall become evident shortly. Phase coherence is another way of expressing the concept of phase-locking. Thus each wave of the phase coherent beacons leaves the antenna with the same phase relation to the waves of the other beacons. They all depart the UOSAT in step with each other. What has happened to the phase relationship when the waves get to your antennas is what makes this probe interesting. First, though, we need to know a little physics.



Though electro-magnetic (EM) radiation such as light and radio waves travel at 186,289 miles per second in a vacuum, these waves are slowed by travelling in denser media such as air, glass, to name a few common dielectrics. In fact the velocity of an EM wave depends on certain properties of the dielectric. The familiar rainbow emanating from a glass prism set in the sunlight demonstrates vividly the effect. The higher frequencies (blue light) are not refracted as much as the other colours. The red colours are substantially more refracted because of their low frequency.

Much the same phenomenon occurs with radio waves. Thus, when we say that radio waves are "bounced" off the F2 layer or E layer, we are really saying that the collective effort on our signals of passing through layers of the ionosphere with varying propagation velocities is to refract the waves. In fact, a common result of the difference of the refractive index with

varying frequency is the length of the so-called "skip-zone". Signals of 21 MHz will generally have a longer one-hop distance than will signals at 14 MHz (with some exceptions under unusual circumstances). So radio waves are also dispersed under certain conditions just as are light waves passing through a prism.

One very prominent effect of light waves passing through the various layers of the ionosphere is that their phases become jumbled. That is to say that often, because of the different paths taken by the waves arriving at your antenna, the phase of the wave can vary widely. The phenomenon of QSB is one result when signals from various paths constructively and then destructively interfere.

To this point we have seen two important physical phenomena that relate to the refraction and phase of waves.

(a) We have seen that EM waves are refracted under some circumstances, and

(b) The effect of this refraction can be a phase difference caused by a difference in the path length taken by the divergent waves.

Now it is time to tie these two points into the UOSAT experiment!

With UOSAT we have a remote source of EM waves about which we know several key characteristics. Most important, we know the phase relation of the four beacons and we know that it is constant at the source. What the experiment is all about then is the measurement of the phase after it has passed through these jumbling layers on their way to your antenna.

The difference in the paths caused by the varying refraction angles of each of the four waves means that the phase relation which existed at the source will be modified in such a manner so as to give us a tool to measure the refractive index of the media through which the waves have passed. That's a rather complex way of saying we launch some waves at "A" and watch what happens to them when they arrive at "B"! And by knowing key properties such as the refractive index of electron density of the plasma along the path between you and the satellite, you can determine the state of the ionosphere, kind of like taking its temperature by remote control! And this information can lead to a map of the ionosphere.

But why four beacons, you might ask? Wouldn't two be sufficient? The two other beacons are there to remove any phase ambiguity that might arise from our inability to discriminate between the successive troughs, for example, of a particular wave.

The equipment needed to generate a simple plot of position versus electron density is well within the grasp of many who read *ASR*, though definitely not "off-the-shelf"! Obviously one must be able to receive on 40, 20, 15 and 10 metres. So receivers and antennas for each band are

necessary. The receivers, moreover, are special in several regards. The incoming signals are "beat" against each other in such a way that the resultant heterodyne contains the phase information we seek. Though not particularly complicated, the receivers are obviously fairly special. It is also reasonable to expect a construction article and perhaps even a kit of parts to appear in the usual place in the next year. On the other hand, the antennas can be quite elementary. Here one certainly would want to utilize wire antennas which favour higher angle radiation and are less sensitive to QRN and QRM such as ignition noise. Thus you should avoid vertical antennas. They would be your last choice here. More useful would be a series of horizontal loops of 40, 20, 15 and 10 nested perches.

In the shack the phase information must be fed to a computer for processing. The computer will take the phase information from the receivers and, by taking into account such variables as path length, doppler shift and spacecraft velocity (among others) will generate a value for the integrated electron density along the path between you and UOSAT at the instant the measurement was made. If the computer also has access to UOSAT tracking information and a CRT display, with suitable software you might be able to map a region in space "over your house" very nearly in real-time.

At maturity, we might see several stations participating in this experiment by networking via Phase IIIB and inputting observed data to a central point for processing and redistribution. A little further down the line we can envision the time when by listening to a certain satellite frequency and having the proper computer equipment at your disposal, you could obtain a map of the ionosphere showing where the openings were and maybe even provide insight to such transient phenomenon as trans-equatorial, Es, as well as yet-to-be discovered modes.

UOSAT certainly has a host of interesting experiments aboard. This Tech Brief has addressed but one of the dozen or so that will be accessible to amateurs around the world interested in pursuing amateur radio's technical branch.

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JULY 1938 AMATEUR RADIO MAGAZINE

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VIA VICTORIAN DIVISION WESTERN ZONE CONVENTION

At Hamilton, October 31st-November 1st. OMs, XYLs and harmonics, dinner, etc. 1981. Trade displays, competitions for All usual convention activities.

For a programme and accommodation availability forward a stamped self-addressed envelope to the Convention Secretary Box 168, Hamilton 3300.

ERRATA NOVICE NOTES SEPTEMBER 1981

CS of Fig. 7 should have the positive terminal connected to D2. No polarity was shown in the diagram.

QSP

BANGLADESH AMATEUR RADIO LEAGUE

The WIA would like to assist BARL by sending them a few current or non-current amateur radio books such as the ARRL Handbook. If any member could spare a Handbook, not too old and even if more or less in used condition please send it along to the Executive Office. All such donations would be gratefully received and properly acknowledged.

AMTOR AND IW

A note from Syd Mollen VK2SG to the Federal IW Co-ordinator via VK3JC advises that signals on 3545 and 14075 kHz which might have been reported as intruders would be legitimate signals emanating from amateur stations. He and VK3BUS, he stated, were the only two stations in Australia using the system, although several others overseas are known. The AMTOR system is a forward error correction system mainly using one of the two types of transmission Mode A or Mode S. AMTOR cannot be resolved by the normal RTTY system to print as AMTOR uses a 7 bit baud code or the 8 bit ASCII code.

HOW'S DX



Ken J. McLachlan VK3AH
PO Box 39, Moorookbank 3138

AX PREFIX

After the ionospheric blackout on July 25th I wondered if the bands would be worth using as the days progressed towards AX day. However conditions, though not excellent were fair and quite a few AXs had a lot of contacts and were really in demand. One problem was that nearly everyone either wanted to know what country, why was it being used, and then to have a chat — which wasn't on seeing we had the call for one day.

BLANK QSLs — FAIR-PLAY SPORT?

Amazing things turn up in our mail box but the contents of an unsolicited letter from an amateur DXpeditioner and QSL Manager well known in Europe, really set me thinking. It contained a number of QSL cards duly signed but the pertinent details were left blank, also a little note accompanied them saying that if I didn't want them I may know someone who did. I know half of VK would, but it doesn't end there as it is believed that there are others floating around in the same condition from North America.

This is on top of the ARRL announcement that bogus cards submitted for DXCC from Europe and America bring about immediate suspension, though one well known American DXpeditioner who has given many VKs a new country from various locales tried unsuccessfully to resign prior to disqualification.

This is a very serious situation, coupled with some amateurs using two metre links with a friend who has a better location, and using a friend's call sign to get him a report, or getting a friend to operate your station if you cannot make it when your turn comes up on the list for the elusive one. It is not ethical or within the rules of fair play.

What extremes will some amateurs go to in a hope of achieving honour roll status? It is wondered what the VK amateurs who have reached the top ten feel after many hard hours of listening, chasing and eventually getting the card for a new country?

QSL managers like WA3HUP, DJ9ZB and W4FRU, to mention a few, are scrupulously honest with their approach to the task and must feel a little disappointed, if not sad, for some of their counterparts, let alone our own band of DXpeditioners like VK9NS, VK2BJL and VK2BKD, again to mention a few, who have gone to a lot of expense, time and personal hardship to plan and launch successful expeditions beyond reproach, giving every DXer the chance of a new one.

What is happening to the DXer that this should occur? It is understood that everyone would like that new country. This QTH also needs a few but not at the lengths some operators will go to. A suggestion given to me recently that a maritime station tied up alongside some rare island or reef should be counted for that country to make it a little easier, really astonishes me. Quantity not quality is a way of life, but please don't extend it into amateur DXing or let it deteriorate DXCC which is one of the highest achievements of the hobby we enjoy.

DX JOTTINGS

Maryanne WA3HUP has relinquished being QSL Manager for 7X2BK Kamil, as he has not forwarded any logs to check against. Probably best to go direct if you really want it and good luck.

Heard around the bands one Indian Ocean station suggesting four IRCs plus an addressed envelope for a QSL card and one rarity in the Pacific suggesting two green stamps would cover the special card. It is a little expensive to get cards

if you really want them personally. This type of station gets a card via the Bureau for his collection from this QTH. If he does not reciprocate not much is lost.

To those that haven't received a VK0 card the following may help to track the elusive operator down. A SASE should suffice in this case.

- VK0SJ — PO Box 27, Kingston, Tasmania 7150, Australia
- VK0DB — 9 Terrigra Avenue, Turramurra 2074, NSW
- VK0GW — 12 Warwick Street, Enfield 5085, SA
- VK0JC — J. Christensen, Danmarksvej 20, DK-4800 Nykøbing Denmark.
- VK0KC — 26 Goomara Street, Stafford 4053, Qld.
- VK0KS — 2/17 Sherwood Road, Ivanhoe 3079, Victoria.
- VK0WW — 14 Thomas Street, Unley 5061, SA

To those who haunt the etherbox or QSL Bureau for that long awaited card, think yourself lucky, as you have a chance of getting it very quickly compared with the USSR.

One UJ amateur enlightened me on this fact just recently as he has worked 283 countries and has 112 confirmed, as yet no cards from VK after 2½ years. He said the trouble was with Box 88, Moscow. Sometimes the delay from there to his QTH is up to two years!

Another keen DXing OM-YL duo is Jane ON7WW and John ON7EJ both being familiar on 20 metres in VK.



Jane ON7WW



John ON7EJ

John received his licence in late 1977, and once John got on the air, Jane was converted and started studying for her "ticket", which she gained in 1979. With now two DXers in the family and the desire to have an up-to-date station, work began. Both having an interest in antenna systems they progressed from a long wire (3 metres above the ground) to a 14AVQ, TH5JR and the latest but not the least are mono-banders on 10, 15 and 29 metres at heights between 10 and 21 metres.

Forty and eighty haven't been forgotten, as each band has its own ground plane with earthed radials and it can be seen that John's professional engineering talents are well used in this regard.

Jane and John share a Drake TR7 transceiver and a linear at the QTH, which has an elevation of 180 metres above sea level. Both share other hobbies, which include tropical fish and gastronomy when they are not putting a big signal into the Pacific on either Phone or CW.

Jane has yet to catch the OM in the DX tally but if the bands are dead, there is always the fish to tend to and, of course, the kitchen duties have to be taken care of.

CHINA — BY1PK

JARL news recently described JA1AN's visit to China, including a visit to the QTH of BY1PK, which is located close to Peking.

The equipment he saw comprised a receiver, tape recorder and a three element rotary beam with controller and is situated in a very small room of an apartment — the beam being placed on the roof, with dipoles for 40 and 80 metres.

Very enthusiastic SWLers man the station round the clock and signals on

SSB and CW were very strong on 21 MHz, most being from JA. Unfortunately they cannot yet transmit, but when they finish fitting up an adjoining larger room they will be able to. They expect this to be in early 1983.

The club members have gone to considerable trouble to design an attractive multi-colour QSL card for the big event of transmitting from station BY1PK.

Apparently activity from BY will be very limited when they receive the go-ahead, due to the high cost of equipment and the very low wages. To illustrate this JA1AN writes that it takes nearly one month's wages to purchase a small calculator, and an economy colour TV is worth in the vicinity of SA1250, which is beyond the reach of most families even though everyone in the household generally works when of age.

For the above I thank my interpreter and hope that when they are QRU someone donates a transceiver so that they can work split frequencies.

ACROSS THE POND!!

Talking to Tony ZL1AZV, a teacher, who was taking advantage of the holidays to burn the midnight oil and work DX, proved to be very informative. Tony advised that Warrick ZL2AFH/A was still awaiting the valves for his "becalmed" rig after three unsuccessful air drops, though ZL4QY/C would be going there in November at the changeover time. As a keen DXer he would accommodate the demand during his stay there, all QSLs should go to ZL1BQD.

Chatham Island hasn't been forgotten this year either, as Lester ZL3PR will be operational and Tony still thinks that he will show from the island in December.

Kermadec, still a much wanted area, is in the boiling pot, but Tony couldn't be persuaded to say any more.

ALBANIA

In a QSO with EA8AK he advised that he has been invited as a guest operator for ZA2HM, which is scheduled to show this month.

ZA Albania was the fourth much wanted country list in the DX Bulletin's recent survey, so the pile-up will be tremendous, and it will be difficult to make oneself heard let alone recognised. They plan to work 80m through 10m, and other guest operators include EA2JG and EA2RP. Good luck for a new one, and if you make it QSLs should be routed to the individual operators, unless they decide to alter their thinking.

JPL

Amateurs who frequent the DX bands and particularly SSTVers had a treat when they had a contact with W6VCI, a club station manned by scientists and technical staff at Pasadena Jet Propulsion Laboratory for the Voyager 2 space probe.

When I had my contacts on 28, 21 and 14 MHz signals were good and many pictures were sent in both monochrome and colour, which were brilliant in detail (I am sorry that I didn't have colour receiving capabilities) and a concise commentary of the impending rendezvous with Saturn. A special multi-coloured card is available for all contacts, and VKs will receive theirs via the Bureau.

They hope to do the same public relations stint again in January 1986, when Voyager 2 will explore the environs of Uranus.

SILENT KEY

I am sad to report the death of Don Buckley W7OK earlier this year from a heart attack. Don was a well known and respected QSL Manager, who was always willing to help with the difficult ones also with some that he didn't look after, and he has processed cards for many a VK over the years.

His friends and fellow amateurs are carrying on his task until other arrangements can be made, and anyone wanting a QSL from any station he handles may still obtain a card from PO Box 95, Las Vegas, NV 89101 until further notice.

QRL ROUTES

I have in my possession a number of QSL routes, QSL Managers and updated addresses in the form of computer lists and DX Manager Books. If any reader wishes to chase down some elusive card please write all details, including the date of contact, with a SASE to the above address, and we will check our lists for you.

LEBANON

Ahmed ODSRZ is operational from near Beirut under severe difficulties. Not being permitted to operate on 40 or 80 metres or communicate with any other OD licence, he has erected dipoles for 20, 15 and 10 metres at 90 feet. He is very active below 14,200 around 15.00 using his TS120S.

Settling in nicely for a three year stay is Doug T30DM. Doug is using a FT101ZD, a 12 AVQ and a TH3 at 15 metres, also dipoles at 60 feet for the lower bands. Indications are that he will be very busy and won't be short of a QSO when the call sign is announced.

BEIZE

Prefix hunters will be happy if the rumour that VP1 Beize is going to change this month to J8 is true.

For their input and support thanks to VK3AHG, VK3AOR, VK3AXQ, VK3BMA, VK3CIF, VK3PU, VK4DK and VK6NT.

Until next month good DXing.

73. Ken.

EDITOR'S NOTE

An extensive list of QSL Managers has been held over until next month due to space restrictions.—VK3UV.

THE CW BANDS WITH ERIC L30042

The best were:—

7 MHz: A4XIZ, CO2BM, EA2ADT, HA9RE, HB9AMO, HB0ALO, HC7CM, LX2BO, SM7ALC, UO2GDW, Y73GU, ZK2BGO

14 MHz: FM7WO, FO6HH, GB2FAA, GB4RW, DJ0LC/HB0, KG6RT, VP9KW, VS6RP, ZK5A, ZK1AC 8P6AU, 9V1UY

21 MHz: DU8JM, G2WQ, HL1J, KL7IB, KX6ZY, UK0FAD, VU2TRC, YB3MD, YC1BMK/3, YV1NX, ZS5YN.

28 MHz: FK6CE, JA8DEY, KP4KK/DU2, UL7PBY, W6VD, WA6SZC, W7FGT, ZS5YN.

AR — WRAPPING IT

The Publications Committee are examining ways and means of trimming unnecessary costs associated with AR

WITHOUT LOWERING STANDARDS.

One cost saver would be to mail AR out in a wrapper instead of in an envelope. We need to make this decision now because our existing stocks of envelopes will be depleted early in the new year.

Savings made utilising wrappers would be substantial, and these would be applied to upgrading AR itself.

Any thoughts you may have on this or any other aspect of AR magazine would be appreciated. VK3UV.—Ed.

A State of the Ark Transverter for the New Amateur Bands

Neville Chivers VK2YO

51 Meeks Crescent, Faulconbridge 2778.

I was reading the mail between a couple of VKs and a ZL concerning the new WARC 79 HF bands at 10, 18 and 24 MHz to become available some time in the future. Although interest was shown in a mild way there seemed some natural reluctance to make redundant perfectly good transceivers, and go to the expense of buying new black boxes for these bands until there were plenty of signals on them.

But is this logical? Surely here is the classic Catch 22 situation. Whilst listening to the Sunday morning broadcast from VK2AWI an item concerning the need to occupy these bands when they are made available prompted me to action.

My trusty old FT200 presently doing duty driving home-brew transverters on 8 and 2 metres caught my attention. Perhaps this is the way to go about getting on these bands. There are plenty of this type of transceiver around with accessory sockets and low level RF output for transverter operation.

Points I kept in mind were:—

- 1 The transverter should be simple and cheap to construct, preferably from parts most amateurs would have in their junk boxes.
- 2 Able to work on any one or all three bands depending on constructor's preference without too much fiddling.
- 3 Possible to get it going without elaborate test gear.

I considered these points in order.

Point 1: After consulting my extensive collection of hoarded parts (some go beyond WW 2) it looked like the transverter would be state of the art construction, with valves, 1 watt carbon resistors, and rat's nest wiring, as I have not accumulated a lot of solid state junk yet.

Point 2: Needs a crystal about 4 MHz and main transceiver switched to 14 MHz for operation on 10 MHz and 18 MHz, and the same rock but 28 MHz from the transceiver for 24 MHz output. After a rummage in the crystal tin I came out with two choices in FT243s at 4026 and 3685, either will work with mental adjustments of the main dial.

Point 3: As I have no more elaborate test gear than the usual multimeter, dummy load, GDO and frequency meter found at most QTHs these days, I proceeded in the knowledge that most constructors would vary my circuit to suit their own pet designs. The chance of two identical transverters being constructed from this article

would be remote, so more detailed circuit measurements or wave forms would be meaningless anyway, even if I had the gear to do it.

I reasoned that if I could make such a device work from what was available to me perhaps a few more black box operators would do the same.

I unashamedly plagiarised various circuits from AR, QST, ARRL Handbook, Yaesu Museum, etc., and came up with a conglomeration that works! (Into a dummy load for the time being of course.)

The particular valve line-up is not critical and may be varied to what is on hand. I tried several alternatives but settled on what is shown in the filament line-up because most are obtainable from black and white TV sets, now decaying in garages or sheds around suburbia. The output tubes (2 x 2E26) were decided for me because they were already installed in the box planned for this transverter. The box was used to house my 6 metre DSB transmitter put out to pasture some years ago. Besides, 2E26s are easily exchanged for 6146s with bias adjustment for higher output (if I ever inherit a pair).

Most of my construction experience has been in the VHF field. It was nice not to have to worry as much about layout or critical adjustments so as to preserve stability. This VHF transverter, in fact, has needed the least amount of debugging of any of my projects to date.

So much for the transmitting side.

For the receiving side, seeing I have a couple of MPF 131s on hand and I am running out of space for any more valves on the chassis (I should have used that old car phone chassis and case in the first place), it looks like a series of plug-in converters will be the order of the day here. Or perhaps that 6AK5-6J6 converter already built from years ago could be put into service again. I will be ready to go on when the new bands are made available with this combination into a G5RV antenna. So get the soldering iron hot, build something like this now, and let's have a QSO on opening day, whenever that is.



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	17.3	7.0M	\$85
	10.2	0.6M	\$45
	14.2	1.5M	\$59
	15.7	1.85M	\$65
	16.7	2.85M	\$75
	17.2	3.7M	\$85
	9.2	0.65M	\$45
	10.2	0.7M	\$49
	17.0	1.7M	\$59
	17.8	2.8M	\$69
	17.5	2.0M	\$65

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Model	Elements	Boom (metres)	Gain dbi	Price with 2kw PEP Balun
13-30-6	6	6.0	7.5	\$289
13-30-8	8	8.5	9.0	\$399

TRAPLESS DUOBANDERS, 20-30 MHz, Continuous (Includes new WARC & CB) (LOG PERIODICS)

20-30-6S	6	4	7.5	\$189
20-30-6L	6	5	8.5	\$219
20-30-8	8	8.5	10.2	\$299

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14-14-4-4	4	7	10	\$269
21-21-5-4	4	6	9.9	\$199
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- Type. FM & AM
- Frequency Range: a) 26-57 995 MHz Space 5 kHz
b) 58-88 MHz Space 12.5 kHz
c) 108-180 MHz Space 5 kHz
d) 380-514 MHz Space 12.5 kHz
- Sensitivity: FM a) 26 180 MHz 0.4uV S/N 12 dB
b) 380-514 MHz 1.0uV S/N 12 dB
AM a) 26-180 MHz 1.0uV S/N 12 dB
b) 380-514 MHz 2.0uV S/N 12 dB
- Selectivity: FM More than 60 dB at -25 kHz
AM More than 60 dB at -10 kHz
- Dimensions: 210 (W) x 75 (H) x 235 (D) mm
8-1/4 (W) x 3-1/4 (H) x 9-1/8 (D) in.
- Weight: 2.8 Kgs
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CONTESTS

Reg Dwyer VK1BR
PO Box 236, Jamison 2614

CONTEST CALENDAR

October

3/4 VK/ZL PHONE AR 5/81
19/11 VK/ZL CW AR 5/81
17/18 JAMBOREE ON THE AIR
24/25 CQ WDX PHONE

November
8/25 22 CZECHOSLOVAKIAN PHONE/CW FCM

14/15 EUROPEAN RTTY
21/22 VK QRP CW/THE WORLD

21/22 ARRL PHONE SWEEPSTAKES CQ
26/28 CQ WDX CW

December

5 Dec. 81 to Jan. 82 ROSS HULL VHF AR 11/81
12/13 ARRL 10 METRE

RULES FOR THE 1981 ROSS HULL MEMORIAL CONTEST

OBJECTS

Australian amateurs will endeavour to contact as many other amateurs as possible. Entrants must operate within the terms of their licences

PERIOD

0001Z 5th December, 1981, to 2400Z 10th January, 1982

EXCHANGE

RS(T) plus a three figure serial number starting at 001 and increasing by one for each contact, when 999 is reached a start is made again from 001.

BANDS

All amateur bands above 30 MHz, however cross band contacts are not permitted. Operation via active repeaters and translators is not allowed

OPERATOR

Single operator only. One transmission only at one time

CONTACTS

Two contacts per GMT day per band with each station providing 10 hours have elapsed since the previous contact.

DURATION

(a) 7 GMT days — not necessarily consecutive.

(b) 2 GMT days consecutive.

SECTIONS

- (1) Phone (AM, FM, SSB, ATV and SSTV)
- (2) CW (CW and RTTY).
- (3) Receiving (any mode)

LOG SHEET

It is desirable that complete logs for the whole contest be submitted for cross checking purposes: photo copies are very acceptable

The following details must be shown: Time GMT, Band, Emission, Stn. worked, Tx exchange, Rx exchange, Points, Bonus. Each page must be totalled at the bottom.

FRONT SHEET

A front sheet must be attached showing the following information in this order:—

Section, call sign, list of 7 best GMT days with daily score and daily multiple, daily total plus 7 day total, list of best 2 GMT days with daily score and day multiplier, daily total plus 2 day total, name and postal address.

SCORING TABLE — AUSTRALIA

Distance	52	144	432	578	1250	2304	km
Up to 100	1	2	5	20	50	30	30
100-200	2	5	10	30	75	100	100
200-400	10	20	40	50	100	200	200
400-600	20	35	60	75	150	200	200
Over 600	10	50	90	100	200	600	600

BONUS

(a) For each new call area in Australia, including own call area, 20 points once only per band per GMT day.

(b) For each prefix worked outside Australia, 40 points once only per band per day.

SPECIAL VK6 BONUS

VK6 stations only shall double the final daily score.

MULTIPLIER

All stations shall multiply the GMT day score, including the Bonus (a) and (b), by the number of bands used for scoring during that day.

SCORING TABLE — OVERSEAS STATIONS

52 MHz — 50 points; 144 MHz — 100 points; 432 MHz — 200 points For contacts with Australian stations only.

AWARDS

A perpetual trophy is awarded annually for competition between members of the Wireless Institute of Australia. The winner's name is inscribed on the trophy and he receives a suitable certificate. The entrant with the highest score in either the 7 day or 2 day division will be the winner and his division will hold the trophy for one year

Certificates will be awarded to the highest score in both the 7 day and the 2 day divisions. A winner of a 7 day certificate cannot be awarded a 2 day one as well.

Overseas entrants will be awarded certificates on the same basis, one for each call area.

SUBMISSION OF LOGS

Entries are to be sent to the FCM, Box 236, Jamison, ACT, and postmarked no later than 4th February, 1982, and endorsed "Ross Hull Memorial Contest".

RECEIVING SECTION

Logs must show the same information as a transmitting log except for the second number exchanged. If both stations are heard both can be claimed but on separate lines of the log. Scoring will be as for a transmitting log.

Any scoring contacts can be logged, there is no limit to the number of times that one station can be logged.

The decision of the FCM is final and no correspondence will be entered into.

Results of the 22 All Asian Contest VK:

A JARL Certificate is issued to the following contestants: VK3RG with 2475 points in the 28 MHz band; VK4XA with 130,237 points in the multi-band entry, Congratulations, gentlemen.

Well, that's all for this month.

1981 VK v. THE WORLD CW QRP CONTEST

Sponsored by the VK CW QRP Club (member of the World QRP Federation), this contest is directed to all CW enthusiasts world-wide who elect to tackle that extra challenge! Contestants may work DX or OWN COUNTRY for scoring!

QRO stations are eagerly invited to participate but must submit contest logs with QRP stations only to qualify for the QRO section of the contest.

QRP stations must sign .../QRP for identification.

DATES

Saturday, November 21st, and Sunday, November 22nd, 1981.

DURATION

Total of 48 hours (0000Z November 21st to 2400Z November 22nd).

MODE

CW only.

BANDS

160m-10m.

CONTEST CALL

"CQ QRP TEST."

SECTIONS

Station Categories:

QRP: Single operator, multi-band or single band.

QRO: Single operator, multi-band or single band.

Period Categories:

Full Period. 48 hours.

Half Period. ANY 24 consecutive hours.

EXCHANGE

VK CW QRP Club Member Contestants: FOUR DIGITS. Membership number plus consecutive serial number starting from 01. If 99 is reached start again at 01.

Non-Member QRP Contestants (VK & DX): FIVE DIGITS. RST report plus consecutive serial number starting from 01. If 99 is reached start again at 01.

QRO Stations (QRO/QRP contacts ONLY valid.)

THREE DIGITS. Give usual RST report only.

SCORING

For ALL contestants operating QRP: i.e. indicated output power into antenna NOT EXCEEDING FIVE WATTS.

Each contact shall score points based on the following table:—

- 5-1 watt: 8 points.
- Over 1 watt-2 watts: 5 points.
- Over 2 watts-3 watts: 4 points.
- Over 3 watts-4 watts: 3 points.
- Over 4 watts-5 watts: 2 points.

QRO contestants using more than 5 watts

OUTPUT:

ONE POINT PER CONTACT.

MULTIPLIERS

No. of VK CW QRP Club members worked ON EACH BAND:
i.e. VK stations giving FOUR DIGIT reports.
No. of DX QRP stations worked ON EACH BAND:

i.e. DX stations giving FIVE DIGIT reports.

CONDITIONS:

Stations may be contacted ONCE ONLY on each band.

Separate log sheets required FOR EACH BAND.

Each logged QSO to show: Date Time (GMT) Station worked, Number sent, Number received, Multiplier, Power OUTPUT and point claimed.

GRAND TOTAL SCORE equals total points from all band x total multipliers from all bands.

A... entries MUST have front summary sheet showing: Calculation of GRAND TOTAL SCORE, Name, Address, Call sign, Signature and Declaration... "I certify that all entries in my contest log sheets are true and honest".

CERTIFICATES

To the VK CW QRP Club member contestant with the highest grand total score IN EACH SECTION

To the NON-MEMBER QRP contestant from each country with the highest grand total score IN EACH SECTION.

To the QRO contestant from each country with the highest grand total score IN EACH SECTION

CONTEST ENTRIES TO BE ADDRESSED TO:

VK CW QRP CLUB, 59 Collova Way, Wattleup 6166, Western Australia, and must reach here not later than end of January, 1982.

Townsville Pacific Festival Contest 81

Here are the official placings for the above contest.

MOST OUTSTANDING PERFORMANCE

A/lan VK4ARV.

Tx PHONE HF

(a) VK4 stations except North Queensland.
CQ BR W.A. VK4WIR.

(b) VK4 stations North Queensland
A/lan VK4ARV.

Tx VHF

Andrew VK4KAM.

WV

Barry Verner.

73. Mil VK4XZ, TARC Contest Manager. ■

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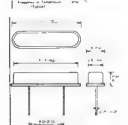
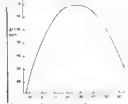
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5. Q Factor 40,000 min
6. Parabolic Curvature Constant Less than -0.04 ppm/v°C (Refer Fig. 1)
7. Turnover Temperature 28.0°C +5°C
8. Capacitance Rate -30°C +80°C
9. Storage Temperature Range 10°C +80°C
10. Operating Temperature Range Less than +5 ppm/year
11. Aging rate Less than 5 ppm for 50 cm Hammer Shock Test
12. Shock
13. Package Size



DATA SHEET AVAILABLE. ALSO AVAILABLE CRYSTAL UNITS FOR QUARTZ CRYSTAL CLOCK.

AWARDS

COLUMN

Bill Verrall VK5WV
7 Lilac Avenue, Flinders Park, SA 5025

As I noted in the August 1981 Issue, here are details of awards available from the Power Valley 10X Chapter.

This chapter was formed in the Latrobe Valley, Victoria, in January 1980. The amateur population is not very large and because of the locality, Chapter members are scattered over a wide area. The Chapter has only five active members who meet on a net frequency of 28570 kHz at 2400 GMT on Saturdays, i.e. Sundays local time.

AWARDS REQUIREMENTS

Awards	Pts. Req.	Chapters Req.	PL Value
Basic	15	1 C or 1 HC	1
1st	25	2 H or 2 HC	2
2nd	50	2 C or 2 HC	3
3rd	100	3 C or 3 HC	4
VIP	200	4 C or 4 HC	5
Hon. Charter	—	—	2
First State	—	—	1
Local	—	—	1

The notes which accompany the awards contain some interesting details of the Latrobe Valley, and I quote:—

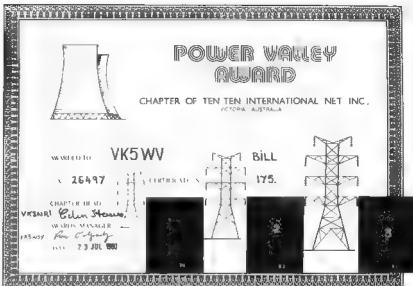
"It is now more than 90 years since the first public electricity supply was established in Victoria and nearly 80 years since the first experimental use of brown coal for briquettes was made in the Latrobe Valley some 150 kilometres east of Melbourne. Today more than 80 per cent of Victoria's electrical power, the basis of the State's industrial progress is generated in the Latrobe Valley. More than 70,000 people live in the Valley between Moe and Traralgon. The Valley is one of the largest brown coal deposits in the world. Brown coal is a relatively young and soft form of coal; more than half of it water. Through special techniques it can be used efficiently in power stations, although the boilers are larger and more complex and they burn nearly four times as much brown coal to produce the same amount of power as black coal. Open cut mining requires a lot of space and the SEC is involved in not only the basic production of power but in the mining of the coal source as well.

"There are presently four major power stations in the Valley — Morwell, Hazelwood, Yallourn and Yallourn West, and the newest and biggest, Loy Yang, is under construction with 21 more on the drawing table for future development.

Coal mining is a 24 hour operation, which is seen in the night shot of No. 13 dredger shown on the VIP certificate. These dredgers, more like coal eating dragons, can supply up to 1980 tonnes of coal per hour to the ever hungry boilers of the nearby power stations."

AWARD COST

Basic, \$3; 1st, 2nd and 3rd endorsements, \$1; VIP, \$2.



APPLICATIONS

Basic award only to Kevin Petty VK3VFF, PO 174, Morwell 3840, Vic., Australia.

Endorsements and VIP, Ron O'Grady, VK3NSY, PO Box 65, Morwell 3840, Vic., Australia.

DESCRIPTION

The basic award is printed on yellow card in two colours, red and black. The endorsement stickers are in mauve, red and dark blue.

The VIP is a multi-coloured jumbo print of the No. 13 Coal Dredger (title in yellow) with all printing in gold. This award will definitely be framed on my shack wall when I can get around to it. Both awards measure approximately 300 mm x 210 mm.

Good hunting.



JOTA 1981

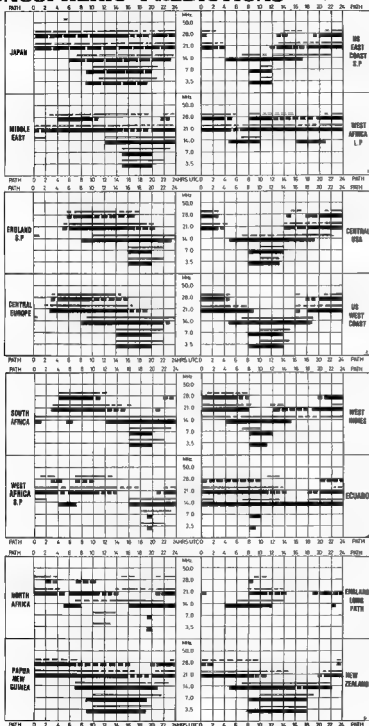
The Scout/Guide Jamboree on the Air will be held this year on Saturday and Sunday, 17th and 18th October.

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE

EDUCATION NOTES

Branda Edmonds VK3KT



First — thanks to all those who have responded to my requests for information about classes and comments on courses. More will always be welcome.

Statistics relating to the examinations held in May have been received from DOC. They include novice theory, regulations and both levels of Morse sending and receiving.

As usual there is a marked discrepancy between the number of applications received and number of candidates sitting — the overall attendance figure for the novice sections was 71 per cent. Variations occur within and between States — ranging from 88 per cent attendance for novice theory in VK4 to 45 per cent for novice Morse sending in VK5.

Pass rates for the various sections in relation to the number of candidates sitting are summarised below.

Exam	Overall		Min.	Max.
	Pass Rate %	%		
Novice Theory	41	23 (VK2)	54 (VK8)	
Regulations	62	49 (VK2)	84 (VK8)	
5 w.p.m. Sending	73	58 (VK2)	100 (VK7)*	
5 w.p.m. Receiving	88	48 (VK4)	87 (VK5/8)	
10 w.p.m. Sending	68	42 (VK2)	88 (VK7)*	
10 w.p.m. Receiving	39	32 (VK2)	65 (VK8)	

* 14 candidates

18 candidates

The full table will be forwarded to Education Officers in each Division, or will be available from the Executive Office on request.

One step which could improve both attendance rates and pass rates would seem to be the provision of trial exams wherever possible. Many past students have found that a trial exam has provided valuable experience and helped to calm the "exam nerves". I do not intend to try to organise trial exams anywhere, but I do intend to provide theory and regulations papers for anyone wanting them before the November exams. Class supervisors or private students can obtain these by writing to the Executive Office and stating numbers and types of papers required.

I would be interested to receive copies of any unpublished questions relating to either novice or AOCOP syllabus. I am sure there must be a large pool of questions which could be circulated among class instructors and save us all a lot of individual effort.

I have also recently received some sample Morse tapes from the DOC. Copies of these can be provided if you send me a blank tape.

If you have any comments or ideas in Education matters, please let me have them. You can reach me direct — QTHR — or phone 787 5350, or via the Executive Office. I am also trying to establish an Education net on Wednesday evenings about 3685 kHz, about 2200 EAST, and would be pleased to meet interested operators there.

Predictions courtesy Department of Science and Environment IPS Sydney.
All times universal UTC (GMT).

ICE NOTES



Edited by I. J. Cook VU

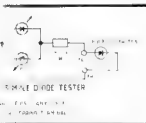
which we have so a simple p...
to build

DIODE JETER

Now a simple diode tester. A transformer provides an AC voltage (this is not critical) which is connected to two back-to-back parallel-emitter diodes (LEDs) and a resistor. When a diode is connected to the terminals, if it is a good diode, only one LED will light, indicating the diode is conducting on alternate

half-cycles. If both LEDs light up then we know the diode is conducting on both half-cycles and is therefore shorted. If neither LED lights, the diode is open-circuit.

Since this circuit is suitable for testing many rectifier and small signal diodes capable of passing at least



Simple Diode Tester

ALL 1/2W 5% TOL
TYPICAL 1/2W 5% TOL

ZENER DIODE TESTER

This shows a circuit that may be used to test zener diodes with rated voltages up to 36V. Four 9V batteries are connected in series with a 10k ohm resistor provide a test current between 0.6 and 10 mA. A voltmeter with a high input resistance is connected to T1 and T4, if the internal resistance is too low it will hog the available current and give incorrect readings.

When the zener diode is connected as shown and the switch is closed, the voltage across the diode will assume the breakdown voltage indicated on the voltmeter.

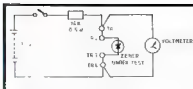


FIG 2 SIMPLE ZENER DIODE TESTER

R1 10K 5% SPONGE TERMINALS
V.M. VOLTMETER SHOULD BE A HIGH INPUT RESISTANCE TYPE 10,000 OHM

If the diode is reversed the meter will probably indicate 0.6 to 1V. A reading equal to that without the diode (nearly 36V) indicates that the zener has an in-built temperature compensating diode and is designed for precision circuits. See Fig. 3.



FIG 3 TEMPERATURE COMPENSATED ZENER

DIODE D1 HAS A NEGATIVE TEMPERATURE COEFFICIENT IN MATCH AND COMPENSATE FOR THE POSITIVE COEFFICIENT OF THE RESISTOR RESULTING IN A VOLTAGE THAT IS TEMPERATURE COMPENSATED

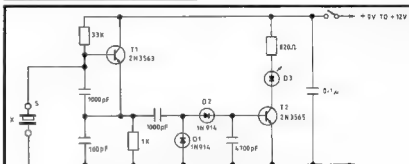


FIG 4 CRYSTAL TESTER

S IS A CRYSTAL SOCKET (SEVERAL DIFFERENT TYPES MAY BE CONNECTED IN PARALLEL)

X IS THE CRYSTAL BEING TESTED. ALL RESISTORS ARE 0.5W RATING

ALL CAPACITORS MAY BE 25V CERAMIC

D3 IS ANY LED RATED AT 10mA OR MORE FORWARD CURRENT

The battery life is almost equal to the shelf life, due to the small test current and short test period.

A CRYSTAL TESTER

Apart from miscellaneous diodes perhaps you have a collection of quartz crystals, ex disposals or ex CB. The question is do they work? Fig. 4 shows a circuit that you can build to find out.

Transistor T1 operates as a Colpitts oscillator (note the two capacitors and remember C is for capacitors and Colpitts, H is for Henrys (inductance) and Hartley).

Diodes D1 and D2 are connected as a voltage doubler and rectify any RF produced by the oscillator. When the rectified signal reaches 0.6V transistor T2 turns on and

causes D3, an LED, to light. Thus if the crystal is good T1 oscillates and D3 lights. Same crystals designed for special applications, especially those designed for operation at low frequencies, will not oscillate in this circuit but all HF crystals should perform satisfactorily.

A good general coverage receiver such as the FRG7 or R1000 could be used as a check on the frequency of oscillation.

Well I hope that one of these circuits might be of sufficient interest to you to build. It would fill in a rainy afternoon quite nicely. A word to the wise. Draw up your layout for the circuit and the front panel before you start work. Ruled graph paper with lines every 2 mm is very useful for this purpose. Mistakes on paper can be rubbed out but a hole in the wrong spot is there for ever. Sit the components on the paper on which you have drawn the outline of your case and move them about until it is clear where they should fit.

Draw in the positions of the components in pencil and then draw in the wiring — another colour preferably. Remember that the circuit is three dimensional. Happy building.

WIA INSERTS INTO AR



NOTICE TO WIA ZONES, CLUBS AND GROUPS

WIA Zone, Club and other Group Secretaries are hereby notified that inserts into AR henceforward will be accepted ONLY direct from a Division and then only by prior arrangement with the Secretary.

All inserts must comply with Postal Regulations and must be received not later than the 26th of the month preceding publication date.

PLEASE READ THIS! FOR ALL AMATEURS!

FACTS FOR THE AUSTRALIAN AMATEUR

All our Kenwood equipment is manufactured by Toko-Kenwood Corporation (Tokyo) Japan and our replacement parts are supplied by Toko-Kenwood Corp (Tokyo) Japan. All our equipment is branded "KENWOOD" and all equipment includes an original English manual. Our photocopy service manuals are only \$5.00, not \$15.00, and if this is not enough, we can supply full original colour manuals. Yes! Kenwood colour service manuals.

FACTS ABOUT PRICE AND SERVICE

BECAUSE we sell equipment that is imported from the factory in Tokyo we are able to offer you huge savings, 100% of one brand alone is imported direct from Tokyo.

BECAUSE we deal directly overseas we are able to tell you of any new models often long before other local distributors and retailers are able to inform you.

BECAUSE we deal directly we are able to obtain parts with ease, which of course must mean we are in a better position to carry out service/warranty, etc.

BECAUSE we usually have the latest service bulletin and of course the parts, we are able to service warranted equipment with an average delay of only 5 days. (Not many can match that service — can they?)

BECAUSE our equipment is in factory sealed cartons, we believe this to be the main reason our service return rate is only 2% and, in any case, if the final quality control check by the manufacturers is not a good enough guarantee, then the BRAND should obviously be withdrawn from the Australian Amateur market until it is suitable, in other words — if the factory can't build them properly — no one can.

NOTE: If the equipment is removed from the carton, how do you know where it's been or what it's done or what's done with it? In our opinion, quality manufactured equipment need not be tampered with.

BECAUSE of all these facts, we have one example to prove the rule.

EXAMPLE: One Kenwood equipment alone not one — no, not one of the transceivers sold by this company in the last 36 weeks up to the lodging of this advertisement with AR magazine, had been returned for service under warranty, or out of warranty, either. We firmly believe this is because our equipment is sold in non-tampered with factory cartons. We believe it is your right as an Amateur and as a customer to receive your purchase in new, untouched condition. If you want your equipment tampered with, touched or on air tested, then we will be unable to supply you. We believe the Amateur to be the best judge of what is fit for him to use.

DON'T THINK

WARRANTY

BECAUSE of the above proven reliability of Kenwood equipment sold by us over the past 36 weeks, we would like to introduce to you our **NEW — 12 MONTHS WARRANTY** on all of our Kenwood products. Yes — now all our Kenwood equipment is covered by our 12 months warranty. Can you afford to buy your Kenwood elsewhere?

YAESU CUSTOMERS

Thank you for the many calls enquiring after the FT-ONE (scooped by AR magazine last issue). For details on the FT-ONE please send just a note with your address and we will send you the colour brochure shortly. FT-ONE cost approx. \$1500-1800. Here are the Yaesu models that we will stock up until Christmas: FT707, FT107M/DMS, FT200, FT200, FT990, FT990, FT450, FT750, FT700, and of course the new FT-ONE. If there are no unforeseen difficulties it will be available before Christmas AND WE GUARANTEE TO BETTER ANY PRICE BY UP TO 10%, providing it is above our cost price. Remember our YAESU is covered by a 12 months warranty due to its excellent reliability.

NOTE: Only 80% of our YAESU is purchased locally therefore there are small delays in some orders.

PRICES SUBJECT TO CHANGE —

BUT NOT OFTEN

Dear Amateur,

It's definitely worthwhile to ring our company LAST. If you write or phone we will give you a price, you definitely don't have to call in person to get our best price. Remember, if we can sell it to you cheaper WE WILL.

"AMATEURS NOTE"

Some amateurs think that R.R.P. means "Recommended Retail Price". To avoid further confusion, we will now sell at A.D.P., that is —

"AMATEURS' DISCOUNT PRICE"

Remember — Why pay more A.D.P. (R.R.P. is too much)

A.D.P. is only a recommended price. There is no obligation to comply with such prices. Dealers are quite free to sell at lower prices if they so wish.

Have pay A.D.P.	EGGS	R
"AMATEURS' DISCOUNT"	PAY TOO MUCH	R
For "E" — A.D.P.		P

HAM(S) and EGGS		
Woodpecker	\$650 A.D.P.	\$847 R.R.P.
TS130S	\$965 A.D.P.	\$1095 R.R.P.
TS130M	\$999 A.D.P.	Who knows?
TS130S	\$689 A.D.P.	Who knows?
TS130S	\$749 A.D.P.	\$833 R.R.P.
TS130S	No longer in production	
400	No longer in production	
850	\$429 A.D.P.	\$495 R.R.P.
7800	No longer in production	
T 7730	\$329 A.D.P.	\$379 R.R.P.
TH9500	\$595 A.D.P.	\$735 R.R.P.
TS600	No longer in production	
TS680	New release	
R1000	\$449 A.D.P.	\$527 P.P.
Most current list available at publication	Includes 2 1/2% Sales Tax increase	Does not include 2 1/2% Tax increase

Definition of a double yoke — Someone who pays more than A.D.P. (twice).

If you pay more than A.D.P. then the yokes on you.

REMEMBER — It is good eggonomics to pay less.

Sorry for the bad yokes.

THE SNOWY RIVER COMPANY P/L
MAIL ORDER — P.O. BOX 227
GREENACRE 2190, N.S.W.

All equipment in factory sealed cartons.
9-5 MON. TO FRI. — 9-12 SAT. (No callings)

PHONE: (02) 709 1557

Correction — TS130S NOT FINISHED YET

In issue 1 and 2 of volume 4 "Amateur Radio Action" and possible other issues, we printed the following:—

"We still have a few TS130S Transceivers left at the fair price of \$699.00 This model is now finished and replaced by the new Woodpecker Model."

THIS STATEMENT WAS ACCIDENTALLY MISLEADING.

Our statement that the TS130S is finished is correct — the model is still available for sale, and the "Woodpecker Model" does not replace it. Our advert was intended to inform readers that our company intended to finish stocking the TS130S and replace those stocks with the "Woodpecker Model". We will be selling both models for the moment. "Woodpecker" due shortly at \$689.00.

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

23 Corbel Street, Shelley 5155, WA

The Editor,
Dear Sir,

Please find enclosed a short article that I have compiled for Leon VK4NI. With her permission I am submitting it for publication in the Amateur Radio magazine as soon as possible.

Kind regards,
Billian (Jill) Weaver VK5YL.

1901 — THE INTERNATIONAL YEAR OF THE DISABLED

By Leone Cartledge VK4NI (ex VK6NEL, VK4NYC).
In Melbourne, Australia, about 12 years ago I attended a school called "The Royal Victorian Institute for the Blind", where I met a boy called Timothy who was interested in electronics. His enthusiasm soon became shared by myself, we joined the Amateur Radio Club VK6AYI, which met each Monday night; we had a whole of a time as licensed amateur radio operators attended to allow each of us to speak to different people, including a sked to America, which we kept regularly. I would very much like to contact any of the operators from this station to renew old friendships.

Several years ago we moved to Perth, the capital of Western Australia, where I attended an Amateur Radio Exhibition in one of the shopping centres. I met some of the local amateurs who offered to assist my studies to attain a novice licence. Many amateurs made cassette tapes which were co-ordinated by a small group who visited me on a regular basis, finally I took a verbal examination — the result — VK6NEL.

Later we moved back to Queensland where, with the assistance of a friend who also made cassettes and visited very Saturday morning for three months, I passed the full call sign — VK4NI. To attain further knowledge I talk to any technicians that I meet and keep regular skeds with friends. Recently I went to a Low Vision Clinic in Brisbane and took a reading test which proved, via the aid of CCTV, that I could read quite well. I intend using this method as currently reading is very difficult because the eyes will not focus. Mum is marvellous and reads to me often, but as you will realise with a large family to take care of, her time is limited. A friend is making up some glasses for me with binocular lenses plus an inbuilt lamp which will assist my vision. I am hoping to read my electronics dictionary by myself.

I would like to give a word of encouragement to those who may have any form of disability who would like to sit for their ham licence. I wish you the very best from the bottom of my heart and have you with one of my favourite sayings. Where there is a will there is a way. Thank you to all of those who have helped me with my quest.

33/88 Leone.

3 Pines Grove, Oak Park 3048
27th June, 1991

The Editor,
Dear Sir,

DOC work overload and costs could be reduced by giving all amateurs the choice of one, two or three year renewal, depending on the amateur's intention to retain or upgrade his licence.

Perhaps WIA Victorian Council or Federal Council could consider this proposal and approach DOC

Yours faithfully,

Bob Bouchier, VK3QO

[This question is still under discussion with the Department and was referred to in AR, December 1990, page 6—Ed.]

100 Wrigley Street, Maroochydore, Qld. 4558
27th August, 1991

The Editor,
Dear Sir,

I am enclosing a photograph which may be of interest to readers of "Amateur Radio", at least from the historical viewpoint. The obelisk is situated on the east side of the road on entering Point Lonsdale at the edge of a playing field.

The historic marker records that:
"From this spot on 12th July, 1905, the first overseas wireless messages from Australia were sent by Lord Northcote, Governor-General."

This is followed by the names of the State Governor and a number of other dignitaries and, last but by no means least, the name "Marchese G. Marconi".

I wonder what mode and frequency was used, probably a low frequency and a spark transmitter, maybe a reader has this information.

Many thanks for the high standard of "Amateur Radio", may it still continue in this way.

Sincerely,

John S. Walr VK4NRQ.



G/- Karabrook PO, SA 5231
28/7/91

The Editor,
Dear Sir,

As a regular user of the so-called "CW only" novice segment of the 15m band (21.125-21.150) I have found that the gentlemen's agreement regarding "CW only" within that sub-band to be almost non-existent.

As a CW-only operator I find it most annoying and frustrating to find every attempt to go on the 15m band on CW beaten by QRM from A3J stations, who are operating areas which would be more suited to the 27 MHz band.

Having now reached the stage where my log entries show with regular monotony "Failed to complete QSO due to SSB QRM" has prompted me to put pen to paper to enquire whether or not the WIA or perhaps the DOC is aware of the problem and, if so, what can, or is, being done to solve this increasing problem?

Of course the whole problem stems from the novice licensee being allowed A3J privileges. If the DOC introduced a regulatory system, similar to the FCC regulations for novice operators in the USA, this problem would not occur, and for VK novice licensees to operate "A1 only" would introduce many advantages, firstly, with all operators using A1 within the narrow novice sub-band with no 10 kHz splatter all over the place, there would be plenty of room for as all to have a QSO, and, secondly if the novice operator had no choice but to operate A1, by the time he upgraded to the AOC with the practice, experience gained,

he would upgrade a more proficient and competent CW operator than many of the recent AOC upgrades one hears about the bands nowadays.

It seems strange to me that an AOC operator (if he so desired) can OBY below 21.125 and have a CW QSO quite free from A3J QRM, all gentleman's agreement, nothing regulatory at all, and yet time that VFO to 21.125, and on up to 21.150 you stand "Buckley's chance" of a "QRM free" QSO on CW at all.

Would one of the novice operators who uses A3J within the "CW only" section of the band, that is from (21.000-21.150), please tell me the reason as they do not recognize the CW only area when, on upgrade to AOC, we can expect to hear you chaps going great guns on A3J down the bottom and of the band? If not, why not?

Finally to the AOC operators who also frequent the novice CW sub-band on A3J, may I ask you gentlemen why it is that I do not hear your SSB below 21.125? It seems that your disregard for the rules only exists within the novice segments, because outside the novice areas you chaps resume your normal code of ethics; again this seems strange, because one would think that whilst the AOC was operating in novice areas he would operate per the book, setting a standard and an example for the newcomers to follow.

Yours fraternally,

Jerry Ricketts VK6NRQ.

Amateurs agree we do not want Government to tell us where we may or may not operate with what modes in what parts of our bands. As a consequence you and I can operate anywhere within our allocations. But if we all did this without regard to other users chaos would occur. So we have devised long-standing "gentlemen's agreements" for using designated band segments for particular modes because being voluntarily self-regulatory keeps the law makers. These "gentlemen's agreements" have been widely publicised both in AR and in recent WIA Call Books and ought to be well known to the operators concerned. Perhaps amateurs affected by operators not adhering to the "gentlemen's agreements" should very nicely break-in in the mode used and very tactfully but firmly remind such operators that they are operating —(QRM) outside the segment set aside for such operators and operators they please OBY accordingly. Yes, by doing this you are putting yourself in the wrong but what other course of action is open to you? Surely nobody realises a situation of high power "jamming" in our bands — that Woodpecker is quite enough thank you.—Ed.

117 Berowra Waters Road,
Berowra Heights 2082

The Editor,
Dear Sir,

Sure, if the lads want to play Third Party Traffic Networks, let them.

However, I find it extremely annoying to have a major VHF repeater tied up by ignorant operators.

During a recent communication network breakdown due to industrial action I observed such practices which we can well do without. Around midnight a message was passed from one "5 x 5" station to another, the originator giving the text in laboured phonetics. It was acknowledge in "plain" language, including queries about the text, the message finally "getting through" in plain language. After several attempts to call the originator and receiving no reply, a weak station from Newcastle returned my call. During his second over, these two "networks", without so much as a please or thank you, came up on top of the QSO, exchanged several overs and went away.

What gives these operators exclusive rights to channels in other than national emergencies?

We don't need these practices on our bands, these people should go back to the CB bands from which they probably came.

Yours faithfully,

A Deans VK2ADQ.

AR ADVERTISERS SUPPORT
WIA MEMBERS

LETTERS TO THE EDITOR

23 Waddell Road, Palmyra, WA 6157
25th August, 1981

The Editor,
Dear Sir,

You recently published a Hamad for me in which I requested a recording of Tony Hancock's "The Radio Ham". I am pleased to report that I had several replies, which I have answered. Unfortunately, I have lost one letter from an eastern State VL and have been unable to thank her. I hope she reads this and drops me another note or I will be in real strife one day if she hears me on air.

I have placed three Hamads in the last 12 months and all have been successful.

I appreciate AR and always look forward to the next issue. Thanks.

Paul VK6PNW.

TECHNICAL CORRESPONDENCE

39 Glenhenty Street, Woodville, SA 5011
11/7/81

The Editor,
Dear Sir,

In his letter in May AR Mr. Diamond asks six questions. If he had been active in amateur radio in the late 1940s he would have known the answers, which are—

1. The small voltage amplifier triode used as a Pierce oscillator in Mr. Rechner's circuit will not damage the crystal with the voltages applied.
2. A crystal oscillator does not need a buffer stage between it and the amplifier. Circuits with two stages, CO-PA, were standard in the crystal oscillator days and can be found in any handbook of that era.
3. As an instructor in a Youth Radio Club I started several novices with a similar circuit using a EJS triode Pierce crystal oscillator and a 5V8 amplifier. None of these rigs chirped or damaged the crystal.
4. The ordinary mH choke and the capacitor shown have proved sufficient to prevent key clicks in low power rigs.
5. Harmonic suppression is done in the ATU.
6. Mr. Rechner's letter stated that the rig would work into any SWR. This means that it could work into any SWR without damaging the final tube, whereas a rig with transistor output loses the transistor if worked into a high SWR or if protected against such loss has very little output into a high SWR.
7. The loading of the rig is by adjusting the number of turns on the output coil to match the load.
8. The globe in the output circuit was common in the early days and was used to measure RF currents which it did cheaply and efficiently. It was used to tune both plate circuits and ATU. A 80 mA globe suitably shunted to match currents and to operate at a dull glow, where it was most sensitive, would consume less than 1/10th of a watt. Twin globes were also used in feeder lines to indicate SWR and aid in adjusting ATUs.

Mr. Rechner's letter attracted the notice of the compiler of the Technical Topics column of Radio Communication, the magazine of the RSGB, and his letter and circuit were reprinted in that column with the comment "His letter and design (which would readily be expanded to include additional features) represents a powerful argument for not regarding thermionic devices as obsolete and old-fashioned."

In these days of black boxes a lot of the old skills and practical knowledge obtained by amateurs who built their own rigs has been lost.

Yours faithfully,

J. A. Gazard VK5JG.

SILENT KEYS

It is with deep regret that we record the passing of—

Mr. H. A. VINNING

VK1VG

Mr. C. R. K. GIBSON

VK3FO

OBITUARY

HOWARD VINNING

VK1VG

Howard Vinning VK1VG, of 17 Hacking Court, Narrabundah, died on 7th August, 1981.

I have known Howard since 1947, when he worked for 3GI in sale as a radio technician. He was licensed in 1938 and was an active member of the Eastern Zone. He transferred to New Guinea in 1952. He served five years overseas with the AIF in the 1939/45 war, and was made a Life Member of the RSL for service to them in New Guinea. He founded the Apex Club of Lae, New Guinea.

He held the call sign VK3VQ in Sale, VK3VQ in New Guinea, and when he returned to Australia in 1972 he was given VK1VG in the ACT. As Overseas Travel Officer for RSL HQ in Canberra he was widely known and held in high esteem. His passing leaves an unfillable gap in many of our lives.

Yours faithfully,

Graham Colley VK3QZ.

HAMADS

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Pye F60/PM/AM diagrams or manual, will return after copied, required for 2m conversion, VKANTV, Ph. 108, Chermide 4032.

Circuit Diagram and service manual for Australian Rx type ARB, N. Burton, 130 The River Road, Revesby, NSW 2212, Ph. (02) 774 1827.

Type 3 Mk. II HF Txcr., and any vintage equip. or components, Max VK2DT, Ph. (068) 865 1131.

Descriptive, detailed information required on article in "Ham Radio", August 1978, page 34 (higher frequency resolution for an HF synthesizer), in particular method used to obtain divide ratios; information not required on basic PLL operation. A. P. Waksham, 55 Yongala Street, Taperoo, SA 5017.

Full info, specs., and radiation pattern for G55V antenna, will pay post and copying costs. John 108, Chermide, Qld. 4032.

R210 Army Receiver, circuit diagram and service information, will pay copying and postage costs. John VK2ZJF, QTHR, Ph. (02) 969 4539.

Copy of RSGB Teleprinter Handbook, on loan or purchase, VK3SP, QTHR, Ph. (053) 842 1841 AH.

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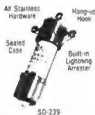
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